

# 2001

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## Eurotransplant mission statement

### *Mission*

Service organization for transplant candidates through the collaborating transplant programmes within the organization

### *Goals*

- To achieve an optimal use of available donor organs and tissues.
- To secure a transparent and objective selection system, based upon medical criteria.
- To assess the importance of factors which have the greatest influence on transplant results.
- To support donor procurement to increase the supply of donor organs and tissue.
- To further improve the results of transplantation through scientific research.
- Promotion, support and coordination of organ transplantation in the broadest sense of terms.

## TABLE OF CONTENTS

Eurotransplant mission statement	3
<b>Board of Eurotransplant International Foundation</b>	<b>7</b>
<b>TRANSPLANT CENTRES IN 2001</b>	<b>8</b>
Renal Transplant Centres	8
Heart Transplant Centres	9
Lung Transplant Centres	11
Liver Transplant Centres	11
Pancreas (*Islet) Transplant Centres	13
Tissue Typing Laboratories	14
<b>Foreword</b>	<b>17</b>
<b>1. Report of the Board and the central office of Stichting Eurotransplant International Foundation</b>	<b>19</b>
1.1 Policy	19
1.2 Central office	19
1.3 Advisory Committees	23
1.4 Recommendations approved	25
<b>2. Eurotransplant: donation, waiting list and transplants in 2001</b>	<b>29</b>
2.1 Donation and donor organ availability in 2001	29
2.1.2 Cadaveric organ donors from the Eurotransplant region	29
2.1.3 Cadaveric organ donors from outside the Eurotransplant region	30
2.1.4 Living donor transplants	31
2.2 Active cadaveric transplant waiting lists at the end of 2001	31
2.3 Inflow on the waiting lists during 2001	32
2.4 Outflow from the waiting list in 2001	32
2.4.1 Organ transplants from cadaveric donors	32
2.4.2 Mortality on the waiting list & de-listing	32
<b>3. Kidney: donation, waiting lists, and transplants</b>	<b>35</b>
3.1 Kidney donors	35
3.2 Waiting list	35
3.3 Inflow to the waiting list in 2001	38
3.4 Outflow from the waiting list during 2001	38
3.4.1 Kidney transplant activity	38
3.4.2 Mortality on the waiting list and de-listing	40
3.5 Living donor kidney transplants	40
<b>4. Thoracic organs: donation, waiting lists, and transplants</b>	<b>41</b>
4.1 Thoracic organ donors	41
4.1.1 Heart donors	41
4.1.2 Lung donors	41
4.2 Waiting lists	41
4.3 Inflow to the thoracic waiting list in 2001	45
4.4 Outflow from the waiting list in 2001	47
4.4.1 Thoracic organ transplant activities	47
4.4.2 Mortality on the waiting list and de-listing	50
<b>5. Liver: donation, waiting lists and transplants</b>	<b>53</b>
5.1 Liver donors	53
5.2 Waiting list	55
5.3 Inflow to the liver waiting list in 2001	55

5.4	Outflow from the liver waiting list in 2001	55
5.4.1	Liver transplant activities	55
5.4.2	Mortality on the waiting list and de-listing	55
5.5	Living donor liver transplants	59
5.6	Intestine transplants	59
<b>6.</b>	<b>Pancreas: donation, waiting lists, and transplants</b>	<b>61</b>
6.1	Pancreas donors	61
6.2	Waiting list	61
6.3	Inflow to the pancreas waiting list during 2001	63
6.4	Outflow from the pancreas waiting list in 2001	64
6.4.1.	Pancreas transplant activities	64
6.4.2	Mortality on the waiting list and de-listing	64
<b>7.</b>	<b>Histocompatibility Testing</b>	<b>67</b>
7.1	Introduction	67
7.2	Eurotransplant External Proficiency Testing Schemes	67
7.2.1	External Proficiency Testing on HLA typing	67
7.2.2	External Proficiency Testing Exercises on Molecular Typing	67
7.2.3	External Proficiency Testing on Crossmatching	68
7.2.4	External Proficiency Testing Exercise on Screening	69
7.3	Programmes for the highly sensitised patients in Eurotransplant	69
7.4	Eurotransplant Serum Sets	69
7.5	Other activities	69
7.5.1	Tissue Typing Advisory Committee (TTAC)	70
<b>8.</b>	<b>Publications and Presentations in 2001</b>	<b>71</b>
8.1	Publications	71
8.2	Posters	73
8.3	Oral Presentations	73
<b>Addenda</b>		<b>79</b>
Table 1	Number of patients on the active waiting list on December 31, 2001, stratified by organ, per country and center	80
Table 2a	Cadaveric donor activities in 2001, stratified by type of donation, per country and center of donor origin	81
Table 2b	Cadaveric donor activities in 2001, stratified by organ used in a transplant, per country and per center of donor origin	82
Table 3a	Transplant activities [cadaveric donors] in 2001, stratified by transplant country, center, organ	83
Table 3b	Transplant activities [living donors] in 2001, stratified by transplant country, center, organ	84
Table 4a	Survey of donor kidney exchange in 2001	85
Table 4b	Survey of donor heart exchange in 2001	86
Table 4c	Survey of donor heart+lung exchange in 2001	87
Table 4d	Survey of donor double lung exchange in 2001	88
Table 4e	Survey of donor single lung exchange in 2001	89
Table 4f	Survey of donor whole liver exchange in 2001	90
Table 4g	Survey of donor split liver exchange in 2001	91
Table 4h	Survey of donor pancreas+kidney exchange in 2001	92
Table 5a	Kidney: registrations on the waiting list	93
Table 5b	Heart: registrations on the waiting list	93
Table 5c	Lung: registrations on the waiting list	93
Table 5d	Liver: registrations on the waiting list	93
Table 5e	Pancreas: registrations on the waiting list	93
Table 6a	Kidney transplants: living donors	94
Table 6b	Liver transplants: living donors	94
<b>Balance sheet and exploitation result of Stichting Eurotransplant International Foundation</b>		<b>95</b>



# Board of Eurotransplant International Foundation

as per December 31, 2001

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The Board of Stichting Eurotransplant International Foundation consists of:

9 members A: members representing organ / tissue typing sections

5 members B: members representing national transplant societies

1 member C: head of the Eurotransplant Reference Laboratory

2 members D: one member being financial expert, one member representing society (ethicist)

Centre- code	Centre / City	Surgeon	Physician	Transplant coordinators / administrators
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### Renal Transplant Centres

#### Austria

GA	Medizinische Universitätsklinik, Graz	P. Petritsch, H. Müller	H. Holzer	M. Schweiger, V. Stadlbauer
IB	Chirurgische Universitätsklinik, Innsbruck	R. Margreiter, A. Königstrainer	C. Bösmüller, G. Mayer	H. Fetz, P. Schobel
OE	Krankenhaus der Elisabethinen, Linz	H-J. Böhmig	H-K. Stummvoll	E. Leitner
OL	Allgemeines Krankenhaus, Linz	P. Brückle	G. Biesenbach	C. Gabriel
WD	Kinderdialyse Allgemeines Krankenhaus, Wien	F. Mühlbacher, R. Steininger	E. Balzar	M. Bodingbauer, R. Asari
WG	Universitätsklinik für Chirurgie, Wien	F. Mühlbacher, R. Steininger	W. Hörl, J. Kovarik	M. Bodingbauer, R. Asari

#### Belgium

AN	Universitair Ziekenhuis Antwerpen, Edegem	D. Ysbaert, T. Chapelle, G. Roeyen	M. Debroe	G. Van Beeumen, W. Van Donink
BJ	Academisch Ziekenhuis der Vrije Universiteit, Brussel	J. Lamote, Y. Van Nieuwenhove	D. Verbeelen, J. Semmesael	B. Amerjckx
BR	ULB, Hôpital Erasme, Bruxelles	L. De Pauw	D. Abramowicz	E. Angenon, I. Sénépart, A. Menu
GE	Universitair Ziekenhuis, Gent	J. De Roose, U. Hesse, F. Vermassen K. Randon	N. Lameire	L. Colenbie, M. Van der Vennet
LA	Cliniques Universitaires St. Luc, Bruxelles	J. Squifflet, M. Mourad, J. Malaise	Y. Pirson, E. Goffin	V. Dumont, C. Lecomte, P. Vanormelingen
LE	Kinderdialyse Universitair Ziekenhuis Gasthuisberg, Leuven	W. Coosemans, J. Pirenne	R. Van Damme-Lombaerts	F. Van Gelder, D. Van Hees, S. Kimpen
LG	Centre Hospitalier Universitaire, Liège	M. Meurisse, O. Detry, A. Deroover	M. Beaujean	M-H. Delboulle, M-F. Hans
LM	Universitair Ziekenhuis Gasthuisberg, Leuven	W. Coosemans, J. Pirenne	Y. Vanrenterghem	F. Van Gelder, D. Van Hees, S. Kimpen

#### Germany

AK	Universitätsklinikum der Rheinisch-Westfälischen TH, Aachen	G. Jakse	J. Floege	A. Homburg, S. Jungheim
AU	Zentralklinikum, Augsburg	H. Weiprecht	H. Weiprecht	C. Schulz
BB	Ruhr Universität, Bochum	W.O. Bechstein	S. Tepel	S. Kolb
BC	Charité-Campus Virchow Klinikum der Humboldt Universität, Berlin	P. Neuhaus	U. Frei	D. Horch, Th. Mehlitz
BE	Universitätsklinikum Benjamin Franklin, Berlin	K. Müller	G. Offermann	E. Müller
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HM	Nephrologisches Zentrum Niedersachsen, Hann. Münden	J. Küster	V. Kliem	E. Schäfer, K. Dochow
HO	Klinikum der Medizinischen Hochschule, Hannover	J. Kleinpauer	K. Koch	H. Basse, F. Vogelsang



Centre-code	Centre / City	Surgeon	Physician	Transplant coordinators / administrators
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JE	Klinikum der Friedrich-Schiller-Universität, Jena	J. Schubert	H. Spersneider	R. Börner
KI	Klinikum Christian-Albrechts-Universität, Kiel	F. Fändrich	H. Kraemer-Hansen	G. Schütt
KL	Klinik der Universität Köln-Lindenthal, Köln	A. Hölscher	C. Baldamus	C. Freudenhammer
KM	Städtische Krankenanstalten Köln-Merheim, Köln	A. Paul, H. Troidl	W. Arms, M. Weber	C. Freudenhammer
KS	Wespfalz-Klinikum, Kaiserslautern	W. Seybold-Epting	F. Albert, U. Albert	M. Schmidt, K. Nehammer, A. Dahms
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UW	Wilhelmina Kinderziekenhuis, Utrecht	R. van Reedt	M. Lilien, C. Schröder	P. Batavier, J. Popma, F. Ultee
<b>Slovenia</b>				
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<b>Heart Transplant Centres</b>				
<b>Austria</b>				
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Centre- code	Centre / City	Surgeon	Physician	Transplant coordinators / administrators
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BH	Kerkhoff Klinik, Bad Nauheim	W. Klovekorn, M. Schoenbourg	M. Schlepfer	A. Friedl
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JE	Klinikum der Friedrich-Schiller-Universität, Jena	L. Eckel, H-G. Wollert	W. Morz	F.-P. Nitschke, A. Manecke
KG	Herz- und Diabeteszentrum, Karlsruhe	J. Cremer, S. Hirt	A. Jäckle	G. Schütt
KI	Klinikum der Christian-Albrechts-Universität, Kiel	E. de Vivie	E. Erdmann	F. Kuhn-Régnier
KL	Klinik der Universität Köln-Lindenthal, Köln	H. Posival		P. Stahlhut
KR	Klinik für Herzchirurgie, Karlsruhe	W. Seybold-Epzing	G. Glunz	M. Schmid, K. Nehammer, A. Dahms
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LP	Klinikum der Universität, Leipzig	R. Lange, M. Overbeck	B. Permanetter	C. Schulz, U. Böckler
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MZ	Klinikum der Johannes-Gutenberg-Universität, Mainz	M. Weyand, R. Tandler	V. Kühnkamp	M. Knorr, R. Ehrhardt
NB	Med. Einrichtungen der Universität Erlangen-Nürnberg	G. Ziemer, H. Aebert		C. Fischer-Fröhlich
RB	Klinikum der Universität, Regensburg	O. Eiert		S. Eisenreich
TU	Klinikum der Eberhard-Karls-Universität, Tübingen			
WZ	Klinikum der Julius-Maximilians-Universität, Würzburg			

Centre-code	Centre / City	Surgeon	Physician	Transplant coordinators / administrators
<b>The Netherlands</b>				
RD	Erasmus Medisch Centrum, Rotterdam	A. Bogers, L. Maat	M. Simoons	R. Dam, H. Hagens, M. Kruyswijk
UT	Academisch Ziekenhuis, Utrecht	A. Brutel de la Rivière, J. Lahpor	N. de Jonge	P. Batavier, J. Popma, F. Ultee
<b>Slovenia</b>				
LO	University Medical Center, Ljubljana	T. Gabrijelčič, T. Klokočovičnik	D. Zorman, B. Vrtovec	B. Vrtovec
<b>Lung Transplant Centres</b>				
<b>Austria</b>				
IB	Chirurgische Universitätsklinik, Innsbruck	G. Laufer, L. Müller, R. Margreiter	Ch. Gelnert, Ch. Prior	H. Fetz, P. Schobel
WG	Universitätsklinik für Chirurgie, Wien	W. Klepetko, W. Wissner		P. Neuhauser, J. Seweryn
<b>Belgium</b>				
BR	ULB, Hôpital Erasme, Bruxelles	Ph. de Franquien	M. Estenne	E. Angenon, I. Sénépart, A. Menu
LM	Universitair Ziekenhuis Gasthuisberg, Leuven	T. Lerut	G. Verleden	F. Van Gelder, D. Van Hees, S. Kimpen
<b>Germany</b>				
BA	Herz- & Diabeteszentrum Nordrhein-Westfalen, Bad Oeynhausen	R. Körfer, K. Minami	G. Tenderich	S. Wlost, B. Heistermann
BD	Deutsches Herzzentrum, Berlin	R. Hetzer	R. Ewert, M. Hummel	N. Franz, H. Kriegler
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ES	Universitätsklinikum, Essen	H. Jakob	J. Piotrowski	R. Abel
FM	Klinikum der Johann-Wolfgang-Goethe-Universität, Frankfurt	A. Moritz, H.-G. Fieguth	Th. Wagner, I. Otterbach	S. Schleede, A. Schischma
GI	Klinikum der Justus-Liebig-Universität, Gießen	P. Vogt, H. Grimm	W. Seeger, C. Fegbeutel	I. Köhler
HG	Universitäts-Krankenhaus Eppendorf, Hamburg	H. Reichenspurner, F. Wagner	H. Nägele	C. Clausen
HO	Klinikum der Medizinischen Hochschule, Hannover	A. Haverich	H. Fabel	H. Basse, F. Vogelsang
HS	Klinikum Universität des Saarlandes, Homburg/Saar	H. Schäfers	G. Sybrecht	C. Friedrichsohn
JE	Klinikum der Friedrich-Schiller-Universität, Jena	Th. Wahlers		R. Börner
KI	Klinikum der Christian-Albrechts-Universität, Kiel	J. Cremer	A. Jäckle	N. Robien, G. Schütt
LP	Klinikum der Universität, Leipzig	H. Autschbach		
ML	Klinikum Großhadern der Ludwig-Maximilians-Universität, München	B. Reichart, C. Müller	J. Behr, P. Überfuhr	C. Schulz
MN	Klinikum der Westfälischen Wilhelms-Universität, Münster	H. Scheld	M. Semik	M. Mauritz-Bröcker
MZ	Klinikum der Johannes-Gutenberg-Universität, Mainz	E. Mayer	K. Katsaros	I. Lehrbach, A. Hazenbiller
<b>The Netherlands</b>				
GR	Academisch Ziekenhuis, Groningen	M. Erasmus, T. Ebels, J. Meuzelaar	W. van der Bij	C. Graveland, A. Schuur, F. Sneep
RD	Erasmus Medisch Centrum, Rotterdam	J. Bekkers	P. van Hal	R. Dam, H. Hagens, M. Kruyswijk
<b>Liver Transplant Centres</b>				
<b>Austria</b>				
GA	Chirurgische Universitätsklinik, Graz	K.-H. Tschellessnigg, F. Iberer	J.-A. Kreis	M. Schweiger, V. Stadlbauer
IB	Chirurgische Universitätsklinik, Innsbruck	R. Margreiter, A. Königsraier	W. Vogel, I. Graziadei	H. Fetz, P. Schobel
WG	Universitätsklinik für Chirurgie, Wien	B. Spechtenhauser F. Mühlbacher, R. Steininger	A. Gangl	M. Bodingbauer, R. Asari

Centre- code	Centre / City	Surgeon	Physician	Transplant coordinators / administrators
<b>Belgium</b>				
AN	Universitair Ziekenhuis Antwerpen, Edegem	D. Ysbaert, T. Chapelle, G. Roeyen	P. Michielsens	G. Van Beeumen, W. Van Donink
BR	ULB, Hôpital Erasme, Bruxelles	M. Gelin, V. Donckier	M. Adler	E. Angenon, I. Sénépart, A. Menu
GE	Universitair Ziekenhuis, Gent	B. De Hemptinne, U. Hesse, P. Patryn R. Troisi	H. Van Vlierberghe, I. Colle	L. Colenbte, M. Van der Vennet
LA	Cliniques Universitaires St. Luc, Bruxelles	J.-B. Otte, R. Reding, J. Lerut	E. Sokal, P. Starckel	M. Jansen, F. Roggen
LG	Centre Hospitalier Universitaire, Liège	P. Honoré, M. Meurisse, O. Detry A. Deroover	J. Belaïche, J. Delwaide	M.-H. Delbouille, M.F. Hans
LM	Universitair Ziekenhuis Gasthuisberg, Leuven	R. Aerts, W. Coosemans, J. Pirenne	J. Fevery, F. Nevens	F. Van Gelder, D. Van Hees, S. Kimpfen
<b>Germany</b>				
AK	Universitätsklinikum der Rheinisch-Westfälischen TH, Aachen	V. Schumpelick	R. Kasperk	S. Matern S. Jungheim
BO	Chirurgische Universitätsklinik, Bonn	A. Himer, M. Wolff	T. Sauerbruch, U. Spengler	E. Backhaus, B. Salz
BC	Charité-Campus Virchow Klinikum der Humboldt Universität, Berlin	P. Neuhaus	U. Frei	D. Horch, Th. Mehlitz
DU	Med. Einrichtungen der Heinrich-Heine-Universität, Düsseldorf	P. Goratzki, W. Röher		B. Schaepeers
ES	Universitätsklinikum, Essen	C. Broelsch, M. Malago		R. Abel
FM	Klinikum der Johann-Wolfgang-Goethe-Universität, Frankfurt	A. Encke, E. Hanisch, B. Markus		S. Schleede, A. Schischma
FR	Klinikum der Albert-Ludwigs-Universität, Freiburg	G. Kirste		F. Schaub, C. Thurow
GO	Klinikum der Georg-August-Universität, Göttingen	B. Ringe		R. Schlegel
HB	Klinikum der Ruprecht-Karls-Universität, Heidelberg	M. Büchler		D. Eipl
HG	Universitäts-Krankenhaus Eppendorf, Hamburg	X. Rogiers		T. Karbe, R. Kiteimeier
HO	Klinikum der Medizinischen Hochschule, Hannover	J. Klempauer		H. Basse, F. Vogelsang
JE	Klinikum der Friedrich-Schiller-Universität, Jena	J. Scheele		R. Börner
KI	Klinikum der Christian-Albrechts-Universität, Kiel	B. Kremer		G. Schütt
KL	Klinik der Universität Köln-Lindenthal, Köln	T. Beckurts		C. Freudenhammer
KM	Städtische Krankenhauser Köln-Merheim, Köln	A. Paul		
LP	Klinikum der Universität, Leipzig	J. Hauss		
MB	Klinikum Otto-von-Guericke Universität, Magdeburg	H. Lippert, J. Fahlke		T. Weiskirchen
MH	Klinikum Rechts der Isar der Technischen Universität, München	M. Stangl		J. Fahlke
ML	Klinikum Großhadern der Ludwig-Maximilians-Universität, München	R.J. Schauer		B. Daldos
MN	Klinikum der Westfälischen Wilhelms-Universität, Münster	N. Semminger, K. Dietl		C. Schulz
MZ	Klinikum der Johannes-Gutenberg-Universität, Mainz	G. Otto		M. Mauritz-Bröcker
NB	Chirurgische Klinik der Universität Erlangen-Nürnberg, Erlangen	W. Hohenberger, Th. Reck		I. Lehrbach, A. Hazenbiller
RB	Klinikum der Universität, Regensburg	K. Jauch, M. Anthuber		M. Knorr, R. Ehrhardt
RO	Klinikum der Universität, Rostock	U. Hopt, W. Schareck		F.-P. Nitschke, A. Manecke
TU	Klinikum der Eberhard-Karls Universität, Tübingen	R. Viebahn		C. Fischer-Fröhlich
WZ	Klinikum der Julius-Maximilians-Universität, Würzburg	W. Timmermann		S. Eisenreich
<b>The Netherlands</b>				
GR	Academisch Ziekenhuis, Groningen	K. de Jong, P. Peeters, M. Slooff R. Porte	A. van den Berg, E. Haagsma, I. Klompmaker, R. de Kneeg	C. Graveland, A. Schuur, F. Sneep
LB	Leids Universitair Medisch Centrum, Leiden	O. Terpstra	B. van Hoek	R. Dam, H. Hagenaars, M. Kruyswijk
RD	Erasmus Medisch Centrum, Rotterdam	J. IJzermans, H. Tilanus, G. Kazemier	H. Metselaar	R. Dam, H. Hagenaars, M. Kruyswijk
<b>Slovenia</b>				
LO	University Medical Centre, Ljubljana	D. Stanisavljevič, T. Sojar	S. Markovič, S. Štepec	M. Kolman, J. Kotar

Centre-code	Centre / City	Surgeon	Physician	Transplant coordinators / administrators
<b>Pancreas (*Islet) Transplant Centres</b>				
<b>Austria</b>				
IB	Chirurgische Universitätsklinik, Innsbruck	R. Margreiter, A. Königgrainer W. Steurer	C. Bösmüller, P. Hengster	H. Fetz, P. Schobel
<b>Belgium</b>				
AN	Universitair Ziekenhuis Antwerpen, Edegem	D. Ysebaert, T. Chapelle, G. Roeyen	M. Debroe	G. Van Beeumen, W. Van Dominck
BP*	Academisch Ziekenhuis der Vrije Universiteit, Brussel	G. Delvaux	D. Pipeleers	C. Hendriecx
BR	ULB, Hôpital Erasme, Bruxelles	L. De Pauw	F. Fery	E. Angenon, V. Duthie, B. Van Haelwijck
GE	Universitair Ziekenhuis, Gent	U. Hesse	N. Lameire, R. Rottiers	L. Colenbie, M. Van der Vennet
LA	Cliniques Universitaires St. Luc, Bruxelles	J. Squifflet, J. Malaise, M. Mourad	B. Vandeleene	V. Dumont, C. Lecomte, P. Vanormelingen
LM	Universitair Ziekenhuis Gasthuisberg, Leuven	R. Aerts, W. Coosemans, J. Pirenne	Y. Vanrenterghem	F. Van Gelder, D. Van Hees, S. Kimpen
<b>Germany</b>				
BB	Knappschaftskrankenhaus, Bochum	W. Bechstein		S. Kolb
BC	Charité-Campus Virchow Klinikum der Humboldt Universität, Berlin	P. Neuhaus	U. Frei, A. Kahl	D. Horsch, Th. Mehlitz
BO	Chirurgische Universitätsklinik, Bonn	M. Wolff	T. Sauerbruch	E. Backhaus, B. Salz
ES	Universitätsklinikum, Essen	C. Broelsch, G. Testa	R. Abel	
FR	Klinikum der Albert-Ludwigs-Universität, Freiburg	G. Kirste	H. Blum	M. Blümke, F. Schaub
GI*	Klinikum der Justus-Liebig-Universität, Gießen		R. Bretzel, M. Eckhard	M. Brendel
HB	Klinikum der Ruprecht-Karls-Universität, Heidelberg	Ch. Herfarth, E. Klar	W. Stremmel	E. Frey
HG	Universitäts-Krankenhaus Eppendorf, Hamburg	X. Rogiers	F. Rinniger	T. Karbe, R. Kütemeier
HO	Klinikum der Medizinischen Hochschule, Hannover	J. Klempnauer	K. Koch	H. Basse, F. Vogelsang
JE	Klinikum der Friedrich-Schiller-Universität, Jena	J. Scheele	H. Spersneider	R. Börner
K	LKlinik der Universität Köln-Lindenthal, Köln	T. Beckurts	M. Pollok	C. Freudenhammer
KM	Städtische Krankenanstalten Köln-Merheim, Köln	A. Paul	W. Arns	C. Freudenhammer
LP	Klinikum der Universität, Leipzig	H. Witzigmann		
LU	Klinikum der Medizinischen Universität, Lübeck	M. Strik	L. Fricke	L. Fricke, E. Petersen
MA	Klinikum der Stadt, Mannheim	J. Sturm, S. Post	P. Schtülle, F. van der Woude	Ch. Krenzel
MH	Klinikum Rechts der Isar der Technischen Universität, München	M. Stangl	U. Heemann	B. Daldos
ML	Klinikum Großhadern der Ludwig-Maximilians-Universität, München	W. Land	R. Landgraf	C. Schulz
MN	Klinikum der Westfälischen Wilhelms-Universität, Münster	K. Dietl	S. Heidenreich	M. Mauritz-Bröcker
MR	Klinikum Lahnberge der Philipps-Universität, Marburg	M. Rothmund, A. Hellinger	H. Lange	U. Heck
MZ	Klinikum der Johannes-Gutenberg-Universität, Mainz	G. Otto	E. Wandel	I. Leibrach, I. Hazenbiller
NB	Chirurgische Klinik der Universität Erlangen-Nürnberg, Erlangen	W. Hohenberger, Th. Reek	U. Kunzendorf	M. Knorr, R. Ehrhardt
RB	Klinikum der Universität, Regensburg	M. Anthuber, K. Jauch, C. Zülke		
RO	Klinikum der Universität, Rostock	U. Hopt, W. Schareck	R. Hampel	F.-P. Nitschke, A. Manecke
TU	Klinikum der Eberhard-Karls-Universität, Tübingen	R. Viebahn	T. Risler	C. Fischer-Fröhlich
UL	Klinikum der Universität, Ulm	D. Abendroth		S. Rettenberger, A. Michels
WZ	Klinikum der Julius-Maximilians-Universität, Würzburg	W. Timmermann	C. Wanner	S. Eisenreich
<b>The Netherlands</b>				
GR	Academisch Ziekenhuis, Groningen	R. Ploeg, R. Porte	J. Homan van der Heide	C. Graveland, A. Schuur, F. Snee
LB	Leids Universitair Medisch Centrum, Leiden	J. Ringers	J. de Fijter	R. Dam, H. Hagemars, M. Kruyswijk
MS	Academisch Ziekenhuis, Maastricht	E. van Heurn	J. van Hooff	O.B. Stroosma

## Tissue Typing Laboratories

**ETRL** Eurotransplant Reference Laboratory, Leids Universitair Medisch Centrum, Leiden, The Netherlands

### Austria

GA Universitätsklinik, Abteilung für Transfusionsmedizin und Immunohämatologie, Graz  
 IB Universitätsklinik, HLA Labor, Innsbruck  
 OL Allgemeines Krankenhaus, Blutzentrale, Linz  
 OW Allgemeines Krankenhaus, HLA Labor, Wels  
 WG Institut für Blutgruppenserologie, Wien

### Belgium

AN Bloedtransfusiecentrum Antwerpen, Belgische Rode Kruis, Edegem  
 BJ Academisch Ziekenhuis der Vrije Universiteit, Bloedtransfusiecentrum Jette, Brussel  
 B RHôpital Erasme, Tissue typing laboratory, Bruxelles  
 GE Universitair Ziekenhuis, Tissue typing laboratory, Gent  
 LA Université de Louvain, Tissue typing laboratory, Bruxelles  
 LG Laboratoire des Groupes Sanguins, Liège  
 LM Bloedtransfusiecentrum, Belgische Rode Kruis, Leuven

### Germany

AK Mikrobiologie am Universitätsklinikum der Rheinisch-Westfälischen TH, Aachen  
 BA Herz- & Diabeteszentrum Nordrhein Westfalen, Bad Oeynhausen  
 BE Universitätsklinikum Benjamin Franklin, Labor für Gewebetypisierung, Berlin  
 BV Charité-Campus Virchow Klinikum der Humboldt Universität, Berlin  
 DU Institut für Blutgerinnung und Transfusionsmedizin, Düsseldorf  
 ER Institut für Klinische Immunologie, Erlangen  
 ES Universitätsklinikum, Institut für Immunologie, Essen  
 FM Immunohaematologie, Blutspendedienst Hessen, Frankfurt  
 FR Blutspendedienst, Labor für Gewebetypisierung, Freiburg  
 GI Institut für Klinische Immunologie und Transfusionsmedizin, Gießen  
 GO Klinikum der Universität, HLA Labor, Göttingen  
 HA Institut für Pathologische Biochemie, Interdisziplinäres Typisierungslabor, Halle  
 HB Institut für Immunologie und Serologie, Heidelberg  
 HG Universitäts-Krankenhaus Eppendorf, HLA Labor, Hamburg  
 HM Gemeinschaftspraxis, Kassel  
 HO Klinikum der Medizinischen Hochschule, Immunohaematologie/Blutbank, Hannover  
 JE Institut für Pathologische Biochemie, Interdisziplinäres Typisierungslabor, Halle  
 KI Klinikum der Christian-Albrechts-Universität, HLA Labor, Kiel  
 KM Institut für Transfusionsmedizin, Köln-Merheim  
 KS Institut für Rechtsmedizin, Transplantationsimmunologie, Kaiserslautern  
 LP Institut für Transfusionsmedizin, Leipzig  
 LU Institut für Immunologie und Transfusionsmedizin, Lübeck  
 ML Kinderklinik der Ludwig-Maximilians-Universität, HLA Labor, München  
 MR Klinikum Lahnberge der Philipps-Universität, HLA Labor, Marburg  
 MZ Klinikum der Johannes-Gutenberg Universität, HLA Labor, Mainz  
 RO Klinikum der Universität, Abteilung für Transfusionsmedizin, HLA Labor, Rostock  
 TU Klinikum der Eberhard-Karls-Universität, Abteilung für Transfusionswesen und Blutbank, Tübingen

## Head

F. Claas, I. Doxiadis, G. Schreuder

G. Lanzer  
 D. Schönitzer  
 C. Gabriel  
 C. Artman  
 W. Mayr

L. Steenssens, G. Mertens  
 C. Demant  
 E. Dupont, M. Andrien  
 B. Vandekerckhove  
 M. de Bruyère, D. Latime  
 C. Bouillemne  
 M-P. Emonds

K. Schweitzer, M. Kleines  
 K. Kleesiek  
 S. Bünte  
 C. Schönemann  
 B. Kuntz, J. Enczmann  
 R. Waßmuth  
 H. Grosse-Wilde, U. Vögeler  
 C. Seidl  
 C. Schulz-Huotari  
 G. Bein, A. Reil  
 H. Neumeyer  
 H. Machulla  
 G. Opelz, J. Mytilineos  
 P. Kühnl, T. Eiermann  
 B. Kreutzig, H. Weißhaar  
 H. Robin-Winn, R. Blasczyk  
 H. Machulla  
 E. Westphal  
 M. Dömer, I. Schuntermann  
 B. Thiele  
 S. Schröder  
 M. Müller-Steinhardt  
 E. Albert  
 E. Wollner  
 W. Hitzler  
 D. Barz, V. Kiefel  
 D. Wernet, I. Schütte

## Tissue Typing Laboratories

UL DRK Blutspendezentrale, Transplantationsimmunologie, Ulm

### Luxembourg

LX Centre Hospitalier, HLA Lab, Luxembourg

### The Netherlands

AW Centraal Laboratorium Bloedtransfusiedienst, Nederlandse Rode Kruis, Amsterdam

GR Laboratorium voor transplantatie-immunologie, Groningen

LB Leiden University Medical Centre, Immunohaematologie, Leiden

MS Academisch Ziekenhuis, Laboratorium voor weefseltypering, Maastricht

NY Academisch Ziekenhuis St. Radboud, Bloedtransfusiedienst, Nijmegen

UT Academisch Ziekenhuis, Bloedbank, Utrecht

### Slovenia

LO Tissue Typing Centre, Blood Transfusion Centre, Ljubljana

## Head

S. Goldmann, C. Flach

F. Hentges

N. Lardy

S. Lens

F. Claas, G. Schreuder

E. van den Berg-Loonen

W. Allebes, I. Joosten

H. Otten

M. Jeras, B. Vidan-Jeras





# Foreword

We herewith present the Annual Report 2001, which includes a large amount of data on waiting lists, organ donations and transplantations. We regret the delay in submitting this report to you so late in the year and expect to speed up publication in the forthcoming year.

The total number of cadaveric donors, used in 2001, was almost equal to the 2000 number. Sharp decreases were noted for The Netherlands and Belgium. Austria and Germany showed increases. Austria and Belgium remain the countries with the highest number of donors per million inhabitants. In 2001, less kidneys, livers, lungs, pancreata and hearts from a slightly higher number of donors than before were used for transplantation. In 2001, again more patients died whilst awaiting a first or repeat organ transplant. Most of them were kidney and liver patients, but also the number of heart and lung patients who died were substantial.

The role of Eurotransplant's Advisory Committees remains crucial in the fulfillment of its obligations. The Committees met 20 times in total and submitted 31 recommendations to the Board. Without the willingness of each individual committee member the development of policy in our complex organization would not be possible. The Board and Directors are grateful for the contributions of all those who are voluntary collaborating with Eurotransplant.

The Board approved the establishment of a joint computer project between Deutsche Stiftung Organtransplantation and Eurotransplant, ETIS. The project concerned the abolition of the TIS computer system for German centers and a redesign of the current computer system of Eurotransplant. The main project was the direct linking of all German transplant centers with the Eurotransplant Network Information System (ENIS). Until 2001, the German transplant centers were linked with ET via their own TIS computer system. However, the German authorities decided to abolish this system and choose for linking with ENIS. In the second half of 2001, almost all German centers were trained to use ENIS. The total redesign of ENIS was started as well. The first major part of this project concerned the redesign of the donor registration module. This Donor Organ Offer Registration (DOOR) module was built and tested in 2001 and implemented in 2002.

At the end of 2001, the ET office applied for the ISO 9001:2000 certificate. In the course of the year, the quality management system was finished and fully operational. The external certification audit took place in December 2001 and resulted in certification. The Board took the initiative to come to a written agreement with the Collaborative Transplant Study (CTS) in order to speed up the proposed close cooperation. A special committee worked out a proposal regarding this agreement which was accepted and became operational in 2001. The aim of this collaboration remains the reduction of workload of the participating transplant centers. In submitting their follow-up data to CTS it will not be necessary anymore to supply Eurotransplant again with similar data.

We acknowledge the special efforts of Mike Smith, who has provided all the data and the tables for this annual report. We would also like to take this opportunity to thank all our colleagues in Eurotransplant for their support. We sincerely hope that you will enjoy reading the report and will continue to join Eurotransplant in its efforts to foster organ donation and transplantation in this new millennium.

*Prof. Dr. Yves Vanrenterghem*  
President

*Dr. Bernard Cohen*  
Director

*Dr. Guido G. Persijn*  
Medical Director

Leiden, November 2002



# 1. Report of the Board and the central office of Stichting Eurotransplant International Foundation

*V.C. Diepeveen-Huijsman and G.C. Wiesenhaan-Stellingwerff, Eurotransplant International Foundation, the Netherlands*

The Board of Stichting Eurotransplant International Foundation met on January 17, June 18, September 26 and 28, 2001. Two new Board members A were elected by the Assembly, namely Prof. J. Lerut from Brussels (LA) in the liver section and Dr. B. Meiser from Munich (ML) in the thoracic section. Prof. P. Schotsmans from Leuven (LM) was appointed as Board member D (representative from society / ethicist) and Prof. U. Heemann (MH) was appointed as a Board member B representing Germany.

## 1.1 Policy

The Board approved the establishment of a joint computer project between Deutsche Stiftung Organtransplantation and Eurotransplant, ETIS. The project concerns abolition of the current TIS computer system for German centers and a redesign of the current system. All German centers were linked to the ET Network Information System (ENIS).

The Belgian Royal Decree was signed in which ET was assigned as the official allocation organization for Belgium.

The Board took the initiative to come to a written agreement with the Collaborative Transplant Study (CTS) in order to speed up the proposed close cooperation. A special committee worked out a proposal regarding this agreement which was accepted.

An ICT committee, consisting of Board members, was established. This committee looked into possibilities to further improve the ET ICT department.

## 1.2 Central office

### General

The allocation and registration departments of Eurotransplant were involved in several major projects. The main project was the direct linking of all German transplant centers with the Eurotransplant Network Information System (ENIS). Until 2001, the German transplant centers were linked with ET via their own TIS computer system. However, the German authorities decided to abolish this system and choose for linking with ENIS. In the second half of 2001, almost all German centers were trained to use ENIS.

The total redesign of ENIS was started. The first major part of this project concerned the redesign of the donor registration module. This Donor Organ Offer Registration (DOOR) module was built and tested in 2001 and implemented in 2002.

At the end of 2001, the ET office applied for the ISO 9001:2000 certificate. In the course of the year, the quality management system was finished and fully operational. The external certification audit took place in December 2001 and resulted in certification.

# Joint declaration regarding cooperation within the framework of Eurotransplant International Foundation

The Minister of Consumer Affairs, Public Health and Environment of the Kingdom of Belgium,  
The Federal Minister of Health of the Federal Republic of Germany,  
The Minister of Health of the Grand Duchy Luxembourg,  
The Minister of Health, Welfare and Sport of the Kingdom of the Netherlands,  
The Federal Minister of Labour, Health and Social Affairs of the Republic of Austria and  
The Minister of Health of the Republic of Slovenia

issue the following joint declaration regarding cooperation within the framework of Eurotransplant International Foundation

## 1. Introduction

As ministers of health we express our appreciation of the activities of Eurotransplant International Foundation (ETI) in Leiden, the Netherlands. ETI is a foundation that has arisen from private initiative. We take the view:

- that the importance of international cooperation on organ transplantation within the ETI framework has been demonstrated and should be continued;
- that distribution of the allocated donor organs as fairly as possible within a transparent and objective allocation system according to medical criteria is crucial for the acceptance of transplantation medicine in the participating countries;
- that a less voluntary form of cooperation on organ exchange within the ETI framework is necessary to retain public confidence and to bring about the required strengthening in ETI's position;
- that government responsibility within the existing regulatory framework for this area is unequivocal, as witnessed also by the legislation passed in the various countries recently;
- that the time is ripe to shape government involvement, also given the background of a possible broadening in cooperation within the ETI framework;
- that there is a need for ETI to be strengthened and for a clear and unambiguous framework for ETI to operate within, as this will enable it to perform its duties responsibly.

## 2. Framework

Given the above, we have agreed on the following framework. It incorporates the criteria that are essential for ETI to continue to operate responsibly and has the following components:

- objective allocation system according to medical criteria;
- safety and quality requirements;
- transparency and follow-up;
- government involvement.

## 3. Framework details

*An objective allocation system according to medical criteria*

All postmortal organs that become available for implantation (donor organs) in the participating countries are – taking account of the respective domestic legislation - reported to ETI<sup>1</sup>. Using the allocation criteria arrived at on the basis of consensus, ETI's task is to ensure optimum allocation of the donor organs.

<sup>1</sup> Within the framework of the twinning agreements between the participating countries' transplantation centers and similar institutions in other countries the same principles are applied as those included in the present document.

The donor organs are allocated according to the following criteria:

- the most important factor is to maximize equality of opportunity for patients, and to do so by taking into account objective medical criteria (e.g. compatibility of organ with recipient, the expected transplantation result, medical urgency and how long a recipient has been waiting) as well as individual differences;
- the allocation system must be patient oriented;
- the allocation procedures must be transparent and objective;

Procedures must ensure justified, genuine distribution across the participating countries in a manner that takes account of the solidarity principle within each country.

The objective is transparency of the medical criteria applied to transplantation and the moment of registration on the waiting list. The placing of patients on the waiting list and the determination of the criteria applied here are matters primarily for the doctors concerned and must take place in accordance with the most recent advances in medical science.

#### *Safety and quality requirements*

The state of a donor organ eligible for allocation by ETI must comply with those safety and quality requirements that can be imposed in accordance with the most recent advances in medical science. ETI must ensure that they do so comply.

#### *Transparency and follow-up*

Given the need for the allocation procedures to be transparent and objective, government in the participating countries must receive current and reliable information periodically - and, if necessary, on request - in order to facilitate monitoring of the entire organ allocation process and ensure that the allocation criteria and the safety and quality requirements are being applied.

#### *Government involvement*

This involvement will be constituted by ETI's answerability to government in the participating countries under conditions still to be elaborated; these will include a periodic evaluation of how ETI is working.

## **4. Action items**

Given the above considerations and the need to take account of national regulatory frameworks, as well as the efforts directed at the implementation of appropriate measures to improve the existing opportunities for post-mortal organ donation, we as ministers of health:

- promote the reporting within the respective domestic regulatory frameworks of all donor organs to ETI as the organization responsible - on the basis of the allocation criteria arrived at by consensus - for ensuring optimum allocation of donor organs;
- request ETI - assuming a patient oriented allocation system within the respective domestic regulatory frameworks, in cooperation with experts and in line with the most recent advances in medical science - to present to government in the participating countries a set of basic principles for organ allocation internationally;
- agree with ETI on what information, in what form, and how, government in the participating countries is to be supplied with;
- enter discussion with ETI on how to shape government involvement;
- promote discussion with and between the expert and professional organizations (in the first instance medical professional organizations) in the participating countries in order to achieve further clarity for patients eligible for transplantation;

- request that ETI, operating according to the general principles and criteria specified in this document, cooperates with experts from the participating countries and, in close consultation with them, generates directives for the twinning agreements between the transplantation centers in the participating countries and similar institutions in other countries.

Brussels, The Minister of Consumer Affairs, Public Health and Environment of the *Kingdom of Belgium*,  
Magda Aelvoet

Bonn, The Federal Minister of Health of the *Federal Republic of Germany*,  
Andrea Fischer

Luxembourg, The Minister of Health of the *Grand Duchy of Luxembourg*,  
Georges Wohlfahrt

The Hague, The Minister of Health, Welfare and Sport of the *Kingdom of the Netherlands*,  
Els Borst-Eilers

Vienna, The Federal Minister of Labour, Health and Social Affairs of the *Republic of Austria*,  
Lore Hostasch

Ljubljana, The Minister of Health of the *Republic of Slovenia*,  
Andrej Bručan

## Quality management system

All ET office related processes are described in the quality management system. These processes are subdivided in different categories, such as:

Customer-related processes	Prognostic processes	General processes
Waiting list management Donor registration Allocation procedures Information supply Relation (client) management Remote users support	Recipient Follow up Education of personnel Selection of suppliers Purchase of resources	Legal requirements Strategy and policy Innovation Internal auditing Quality management

The system was completed in the course of 2001 which resulted in an external audit by the auditing and certifying institution Veritas. Veritas concluded that ET met the requirements for certification.

The Dutch health authorities as well as a delegation of the German Bundesärztekammer also performed external audits. Both authorities made some suggestions for improvement, but in general the quality standards of ET were felt to be very satisfying.

Besides external, also 32 internal audits were performed. These audits resulted in about 30 initiatives for minor changes and two initiatives for larger projects. These initiatives for changes are an ongoing process.

One of the major changes of the system concerns an improved registration of non-conformities. These include 'mistakes' made by ET co-workers and violations of the ET rules by transplant centers. Also tissue typing, donor management and procurement and transport related problems during the allocation process, are registered in the system.

A total of 278 non-conformities were registered. Ninety of these non-conformities concerned more or less serious mistakes by ET co-workers (most of the time wrong registration of certain laboratory values in ENIS), which resulted in adaptations of the computer program in order to avoid further mistakes of this kind. Eighty-six non-conformities by transplant centers were registered. These non-conformities concerned minor communication problems and late reactions to organ offers (more than two hours), to serious violations. In case serious violations of allocation rules took place, violation letters were sent to the centers concerned urging them to clarify the

violation committed. Seventy-three non-conformities were committed by donor centers. These non-conformities concern a too short allocation time (less than six hours) and wrong donor information. Eleven non-conformities concerned tissue typing related problems. The remaining non-conformities concern mainly transport (airlines, taxi's). In total 67 'violation' letters were written to different centers, because more serious violations had taken place.

Twice a year, a detailed analysis of non-conformities is performed. This analysis is taken into account when strategical policies are discussed.

### 1.3 Advisory Committees

In 2001, the various Advisory Committees met 20 times and submitted 31 recommendations. Of these recommendations, 30 were accepted and 1 was postponed. The composition of the various Advisory Committees as per December 31, 2001 was as follows:

#### KIDNEY ADVISORY COMMITTEE (ETKAC)

Name	As of	Remarks
Prof.Dr. U. Frei, Berlin	01.1997	chairman, representative Board
Prof.Dr. G. Mayer, Innsbruck	12.2000	representative Austria
Prof.Dr. F. Mühlbacher, Vienna	09.1994	representative Austria
Dr. P. Duhoux, Luxembourg	09.1994	representative Luxembourg
Dr. D. Abramowicz, Brussels (BR)	01.2000	representative Belgium
Prof.Dr. J-P. Squifflet, Brussels (LA)	09.1999	representative Belgium
Dr. U. Albert, Kaiserslautern	12.1996	representative Germany
Prof.Dr. K. Dreikorn, Bremen	12.1996	representative Germany
Prof.Dr. G. Kirste, Freiburg	07.1996	representative Germany
Prof.Dr. G. Offermann, Berlin	09.1994	representative Germany
Dr. R. Hené, Utrecht	03.1998	representative the Netherlands
Dr. A. Hoitsma, Nijmegen	09.1994	representative the Netherlands
Dr. D. Kováč, Ljubljana	12.1999	representative Slovenia
Prof.Dr. F.H.J. Claas, Leiden (ETRL)	09.1994	representative TT Assembly
Prof.Dr. G. Offner, Hanover	09.1994	external advisor (pediatric)
Mr. Th. Wujciak, Heidelberg	09.1994	external advisor (allocation)
Dr. G.G. Persijn, Eurotransplant	09.1994	secretary

#### LIVER ADVISORY COMMITTEE (ELAC)

Name	As of	Remarks
Prof.Dr. J. Hauss, Leipzig	11.2001	chairman, representative Board
Prof.Dr. A. Königsrainer, Innsbruck	10.2001	representative Austria
Dr. O. Detry, Liège	01.2000	representative Belgium
Prof.Dr. J. Lerut, Brussels (LA)	01.2000	representative Belgium
vacancy	11.2001	representative Germany
Prof.Dr. P. Neuhaus, Berlin	09.1994	representative Germany
Prof.Dr. B. Ringe, Göttingen	09.1994	representative Germany
Dr. B. van Hoek, Leiden	07.2001	representative the Netherlands
Dr. D. Stanisavljevič, Ljubljana	01.2000	representative Slovenia
Dr. T. Gerling, Eurotransplant	03.2001	secretary

#### PANCREAS ADVISORY COMMITTEE (PAC)

Name	As of	Remarks
Prof.Dr. J.P. van Hooff, Maastricht	06.1998	chairman, representative Board
Prof.Dr. A. Königsrainer, Innsbruck	08.1994	representative Austria
Prof.Dr. J-P. Squifflet, Brussels (LA)	08.1994	representative Belgium
Prof.Dr. W. Bechstein, Bochum	01.2000	representative Germany
Prof.Dr. R.G. Bretzel, Giessen	09.1996	representative Germany
Prof.Dr. W. Schareck, Rostock	01.2000	representative Germany
Dr. J. Ringers, Leiden	04.1998	representative the Netherlands
Prof.Dr. R.J. Ploeg, Groningen	10.2001	representative the Netherlands
Prof.Dr. F.H.J. Claas, Leiden (ETRL)	08.1994	representative TT Assembly
Dr. E. de Buijzer, Eurotransplant	01.2001	secretary

#### THORACIC ADVISORY COMMITTEE (ThAC)

Name	As of	Remarks
Prof.Dr. G. Laufer, Innsbruck	10.2001	chairman, representative Board
Prof.Dr. A. Wasler, Graz	11.2001	representative Austria
Prof.Dr. W. Klepetko, Vienna	05.2000	representative Austria

Dr. M. Antoine, Brussels (BR)	01.2000	representative Belgium
Prof.Dr. D. Van Raemdonck, Leuven	02.2001	representative Belgium
Prof.Dr. S. Hagl, Heidelberg	09.1994	representative Germany
Dr. B. Meiser, Munich	01.2000	representative Germany
Prof.Dr. W. Mohr, Leipzig	01.2000	representative Germany
Prof.Dr. F. Schöndube, Aachen	01.2000	representative Germany
Dr. A. Balk, Rotterdam	03.1998	representative the Netherlands
Dr. W. van der Bij, Groningen	06.2001	representative the Netherlands
Dr. T. Klokočovnik, Ljubljana	01.2000	representative Slovenia
Dr. Th. Werle, Eurotransplant	01.2000	secretary

#### ORGAN PROCUREMENT COMMITTEE (OPC)

Name	As of	Remarks
Dr. J. van der Vliet, Nijmegen	01.2000	chairman, representative Board
Dr. P. Wamser, Vienna	03.1995	representative TC's Austria
Mr. P. Vanormelingen, Brussels (LA)	03.1998	representative TC's Belgium
Ms. S. Tietz, Hanover	01.2000	representative TC's Germany
Mr. D. Horch, Berlin	01.2000	representative TC's Germany
Mr. W. Hordijk, Nijmegen	11.1998	representative TC's NL
Dr. T. Pintar, Ljubljana	05.2000	representative Slovenia
Prof.Dr. G. Kirste, Freiburg	09.1996	representative ETKAC
Dr. O. Detry, Liège	01.2000	representative ELAC
Prof.Dr. J-P. Squifflet, Brussels (LA)	09.1995	representative PAC
Dr. M. Antoine, Brussels (BR)	06.1998	representative ThAC
Dr. I. Doxiadis, Leiden (ETRL)	02.1998	representative TTAC
Dr. J. de Boer, Eurotransplant	09.1995	secretary

#### COMPUTER SERVICES WORKING GROUP (CSWG)

Name	As of	Remarks
Prof.Dr. F. Mühlbacher, Vienna	09.1995	chairman, representative Board
Dr. R. Kramar, Wels	09.1995	representative Austria
Prof.Dr. D. Van Raemdonck, Leuven	01.2000	representative Belgium
Mr. Th. Wujciak, Heidelberg	01.2000	representative Germany
Dr. A. Hoitsma, Nijmegen	09.1995	representative the Netherlands + ETKAC
vacancy	07.2001	representative ELAC
Dr. S. Lems, Groningen	06.1996	representative TTAC
Mr. W. van Zwet, Eurotransplant	11.2000	secretary

#### TISSUE TYPING ADVISORY COMMITTEE (TTAC)

Name	As of	Remarks
Prof.Dr. F.H.J. Claas, Leiden (ETRL)	09.1995	chairman, representative Board
Prof.Dr. W. Mayr, Vienna	09.1995	representative Austria
Prof.Dr. D. Latinne, Brussels (LA)	01.2000	representative Belgium
Dr. F. Hentges, Luxembourg	09.1995	representative Luxembourg
Prof.Dr. H. Grosse-Wilde, Essen	01.2000	representative Germany
Dr. R. Wassmuth, Erlangen	01.2000	representative Germany
Dr. S. Lems, Groningen	09.1995	representative the Netherlands
Dr. B. Vidan Jeras, Ljubljana	12.1999	representative Slovenia
Prof.Dr. I.I.N. Doxiadis, Leiden (ETRL)	09.1995	secretary

#### ETHICS COMMITTEE (EC)

Name	As of	Remarks
Prof.Dr. P. Schotsmans, Leuven	01.2001	chairman, representative Board
Drs. M. Bos, The Hague	05.1995	vice-chairman, reprstive the Netherlands
Dr. R. Reding, Brussels (LA)	01.2000	representative Belgium
Prof.Dr. Ch. Broelsch, Essen	01.2000	representative Germany
Dr. W. Schaupp, Vienna	04.1998	representative Austria
Dr. D. Rigler Pleterksi, Ljubljana	01.2000	representative Slovenia
Dr. G.C. Wiesenhaan-Stellingwerff, ET	04.2001	secretary

#### FINANCIAL COMMITTEE (FC)

Name	As of	Remarks
Drs. H.M.A. Schippers, The Hague	05.1995	chairman, representative Board



Mag. O. Postl, Vienna	05.1995	representative Austria
Dr. D. Ysebaert, Antwerp	05.1995	representative Belgium
Dr. E. Nagel, Hanover	09.1997	representative Germany
Dr. B. Cohen, Eurotransplant	05.1995	secretary 1
W. van Zwet, Eurotransplant	01.1999	secretary 2

## 1.4 Recommendations approved

In 2001, the following recommendations were submitted by the Advisory Committees and approved by the Board of Eurotransplant International Foundation:

### Kidney Advisory Committee

#### RKAC02.01

After first as well as after repeated kidney failure, both within 90 days after transplantation, waiting time will be returned starting from the dialysis time before the first transplant.

#### RKAC03.01

Transfer HIT patients into AM program and stop the HIT program by the end of 2001.

#### RKAC04.01

Reshape / improve the AM program by introducing using intelligent computer matching programs.

#### RKAC05.01

Communication with other OEO's to implement HI patients not in a HIT way but in an AM way to get them transplanted.

### Liver Advisory Committee

#### RLAC01.01 rephrased

Start a computerized Dutch waiting list with priority for T2 patients at all times. Dutch AB0-B T2 patients are eligible for receiving an AB0-0 donor liver.

#### RLAC02.01 rephrased

Obligatory splitting

All children eligible for segments 2,3, i.e. left lateral lobe, can be ranked as T2 (=MUC II). When a donor liver is offered to the patient, the pediatric transplant center is obliged to split or accept a split graft if it fulfills the split criteria set by de Ville de Goyet. ET will at the same time allocate the extended right lobe (segments 1,4-8) to a suitable adult recipient following a patient oriented allocation. In case the pediatric transplant center does not perform the split, the liver will then subsequently be re-allocated according to the standard ET rules.

#### RLAC03.01

ET donor splitting criteria:

- haemodynamically stable donor (no vasopressors);
- no cardiac arrest during the last 48 hours;
- ICU stay less than 5 days;
- no clinical signs of sepsis;
- liver function tests (ASAT/GOT, ALAT/GPT, gGT) within 3 times the normal range;
- Na<sup>+</sup> <160 at time of procurement;
- age 15-50 years: splitting for one pediatric and one adult recipient.

#### RLAC04.01

'Optional splitting'

Whenever a liver is offered to a transplant center for a recipient other than a pediatric recipient in T2 eligible for transplantation of segments 2,3, i.e. left lateral lobe, the liver may optionally be split irrespective of fulfilling the ET donor splitting criteria. In such case the transplant center will be allowed to choose the recipient for the second split from its own waiting list. This applies to splitting for two adults as well as to splitting for one child and one adult. This procedure will be considered as an experimental protocol during two years including regular evaluations.

### **RLAC05.01**

Remove option 'either' from the ENIS recipient's profile in order to force centers to specify beforehand which split they would accept.

### **RLAC07.01**

- Combined liver+thoracic allocation

Patients awaiting a combined liver+thoracic transplant should be ranked on an equal basis. The ranking order is as follows:

1. international allocation for HU liver patients;
2. national allocation for combined liver+thoracic transplants;
3. national allocation for elective liver patients;
4. international allocation for combined liver+thoracic transplants;
5. international allocation for elective liver patients.

Patients admitted to the waiting list for combined liver+thoracic transplants have - as before - to be audited.

- Combined liver+abdominal (extra renal) allocation

Patients awaiting a combined liver+abdominal transplant should be ranked on an equal basis. The ranking order is as follows:

1. international allocation for HU liver patients;
2. international allocation for combined liver+abdominal (extra renal) transplants;
3. national allocation for elective liver patients;
4. international allocation for elective liver patients.

This however excludes liver+kidney transplantation.

Patients admitted to the waiting list for combined liver+abdominal transplants have - as before - to be audited.

## **Pancreas Advisory Committee**

### **RPAC01.01**

1. SU status for patients with severe hypoglycemia unawareness, defined by the following criteria:
  - two or more hypoglycemic episodes in one year (requiring assistance by others with IV injections of glucose or glucagon) under intensified insulin therapy and intensive care by a diabetologist;
  - confirmed hypoglycemia unawareness and impaired hypoglycemia counter regulation (hypoglycemic clamp test).
2. Admission of SU patients is only permitted after approval by the PAC audit committee. This audit committee will decide on the eligibility of the patient for the SU status within seven working days after receiving the written documentation of both the hypoglycemic episodes and the hypoglycemic clamp test.
3. SU patients will be listed after the mandatory exchange patients on the waiting list.
4. AB0-blood group compatible, sorted according to waiting time.
5. The audit committee will be appointed by the PAC and will consist of two PAC members.

### **RPAC02.01**

The PAC has defined the two categories for potential donors of:

- vascularized pancreata: donors between 5 and 50 years of age with BMI <30;
- islet cells: donors between 51 and 65 years of age or younger donors with a BMI > 30.

### **RPAC03.01**

For a trial period of one year, kidney+pancreas and pancreas-only patients receive the same priority and will be sorted according to waiting time.

### **RPAC04.01 2<sup>nd</sup> rephrase**

Division of ET in 10 regions for pancreas procurement:

7 German donor regions, the Netherlands, Belgium and Luxemburg, Austria and Slovenia.

### **RPAC05.01 rephrased**

Allocation of a pancreas+kidney, pancreas-only or islet transplantation is based on RPAC03.01.

Pancreas+kidney and pancreas-only organ transplantation always receive priority over islet transplantation.

Allocation order:

1. Combined organ [CO] (= mandatory exchange) recipients: pancreas+liver and possibly an other organ; (pancreas+kidney recipients do not qualify for the urgency of combined organ transplantation):
  - AB0-blood group compatible;
  - first offer to CO patient according to waiting time.
2. SU-pancreas recipients,
  - sorted according to waiting time on SU;
  - AB0-blood group compatible.
3. ET allocation:
  - ET-blood group compatible;
  - point score system: 60% for cold ischemia period and 40% for waiting time, pancreas exchange balance (open for discussion).

### **RPAC06.01 rephrased**

Every multi organ donor is a potential pancreas donor if there are no contra-indications. The PAC defined the following reasons for not procuring a pancreas:

- direct trauma to the pancreas;
- haematoma in the pancreas;
- calcifications of the pancreas;
- the donor suffered from Diabetes Mellitus;
- pancreatitis (acute or chronic);
- the pancreas must be procured by an experienced surgeon, however the lack of availability of an experienced surgeon is no excuse for not procuring the pancreas.

### **RPAC08.01**

1. SU status for a limited number of islet transplant patients awaiting a second islet transplantation from islet transplant centers participating in a clinical trial;
2. A center requesting this status, must provide:
  - the protocol in use;
  - the number of patients to be applied for the SU status;
3. The PAC will then discuss the request and decide on the number of patients to be granted the SU status.

### **RPAC09.01**

GAD, ICA and IA-2 antibody testing shall be performed by centers participating in the workshops of Dr. Polly Bingley, Bristol, UK. An exception is made for the laboratory of Prof. Maes from the Free University, Brussels in Belgium.

## **Thoracic Advisory Committee**

### **RThAC01.01**

Ask the BÄK to rephrase the current rules on the audit committee for HU thoracic organ allocation, in order to permit an ET audit committee to be installed.

### **RThAC02.01**

Seven clinical items, which are equivalent to the clinical characteristics of Aaronson Mancini Score, should be added at the time of registration on a mandatory basis. Additional characteristics might be appended on a facultative basis.

### **RThAC03.01**

1. Lungs harvested in Slovenia should be allocated to the Vienna transplant center by priority;
2. Slovenian recipients on the Vienna waiting list for lung transplantation should have the priority for the lungs harvested in Slovenia.
3. Slovenian recipients are allowed to change the transplant center by request.
4. The agreement is terminated as soon as a lung transplant program in Slovenia has been established.

### **RThAC04.01**

Recipient based size class matching in heart allocation should be established, in which the actual length of the acceptor is used. The acceptable range for individual recipients must be indicated by the transplant program upon listing.

### **RThAC05.01**

Size class matching in lung allocation should be done according to total lung capacity (TLC). The transplant programs have to indicate the recipient TLC upon listing; it is however not required to indicate plus/minus range limits.

### **RThAC06.01**

With regard to a previous statement of the ThAC that national allocation is the responsibility of national authorities, lungs will be allocated in Germany on the basis of TPG ABO blood group identity i.e. compatibility (AB0 to AB0-0, AB0-A to AB0-A and -AB, AB0-B to AB0-B and -AB, AB0-AB to AB0-AB).

## **Organ Procurement Committee**

### **ROPC01.01**

Upon referral of a compromised donor, the donor center should always inform the ET duty desk about risks on the safety or quality of donor organs to be expected. The referring center should officially, in writing, state its arguments for reporting the donor.

## **Computer Services Working Group**

### **RCSWG01.01**

All recommendations from the Advisory Committees to the Board with possible IT implications will have to be accompanied by an impact analysis and planning before they can be forwarded to the Board for approval.

### **RCSWG02.01**

With respect to the collection of follow-up data the CSWG recommends to collect these data in collaboration with reliable (inter)national transplant registries.

## **Ethics Committee**

### **REC 04.00 rephrased**

Cross-over living donation may be considered within the following framework:

1. informed and voluntary consent of both donors and recipients should be established;
2. approval should be obtained from the local ethics committee;
3. the surgical procedures should be performed simultaneously;
4. preoperative measures and surgical procedures should be outlined in a protocol.

## **Financial Committee**

### **RFC01.01**

The FC recommends the Board to approve the Annual Accounts 2000.

### **RFC02.01**

The FC recommends the Board to approve the 2002 budget proposal with a 7.9% increase in the registration tariff, with the restriction that cost savings are to be accomplished in case the Krankenkassen do not approve the new registration fee for the year 2002.

## 2. Eurotransplant: donation, waiting list and transplants in 2001

### 2.1 Donation and donor organ availability in 2001

#### 2.1.2 Cadaveric organ donors from the Eurotransplant region

The donation statistics only deal with cadaveric donors, of whom at least one organ has been used in a transplant. Excluded are donors, reported to and/or offered by Eurotransplant, but from whom no organ transplant was realized.

The total number of cadaveric donors, used in 2001 (N=1677), was almost equal to the 2000 number (N=1670) [Table 2.1]. Sharp decreases were noted for The Netherlands (-7.4%) and Belgium (-14.0%). Austria and Germany showed increases of 1.6% and 5.6% respectively. Slovenia, participating for the second year, reported 23 donors (2000: 22 donors). Austria and Belgium remain the countries with the highest number of donors per million inhabitants, namely, 23.0 and 21.6, almost twice as much as the other countries.

In 2001, less kidneys, livers, lungs, pancreata and hearts from a slightly higher number of donors than before, were actually used for clinical transplantation, N=-9 (-0.6%), N=-22 (-2.0%), N=-3 (-1.2%), N=-21 (-6.3%) and N=-40 (-6.3%) respectively [Table 2.2].

**Table 2.1** Number of cadaveric organ donors, from the Eurotransplant region and used for a transplant from 1997 to 2001

country	population (million)	1997	1998	1999	2000	2001	pmp	2000/2001
Austria	8,2	157	166	203	186	189	23	1,6%
Belgium	10,3	225	195	242	258	222	21,6	-14,0%
Germany	82,2	1048	1073	1009	995	1051	12,8	5,6%
Luxembourg	0,4	5	7	8	7	5	12,5	-28,6%
Netherlands	16	217	196	165	202	187	11,7	-7,4%
Slovenia	2	0	0	0	22	23	11,5	4,5%
total	119	1652	1637	1627	1670	1677	14	0,4%

**Table 2.2** Number of cadaveric organ donors, from the Eurotransplant region and used for a transplant, by organ from 1997 to 2001

year of registration	1997	1998	1999	2000	2001	2000/2001
organ donors, total	1652	1637	1627	1670	1677	0,4%
organ donors, by organ						
kidney	1608	1595	1578	1632	1623	-0,6%
heart	803	746	709	633	593	-6,3%
lung	169	225	220	244	241	-1,2%
liver	983	962	1027	1076	1054	-2,0%
pancreas	226	256	310	334	313	-6,3%

Comparing 2000 and 2001, there was 26.2% increase of the usage of elderly donors (aged 65 years or more): 172 in 2000 versus 217 in 2001 [Table 2.3]. Noteworthy is the slight drop in blood group O donors with -4.3% in 2001. The percentages of the causes of death of the organ donors in 2001 changed as compared with 2000, namely 31.1%, >accident= donors (2000: 29%), 65.1% >natural death= donors (2000: 67%) and 3.8% donors due to suicide (2000: 4%).

Differences in multi-organ donation rates between the Eurotransplant countries remained: Belgium (83.3%) and Austria (73.1%) are ahead of Germany (66.7%) and The Netherlands (61.3%). (Table 2.4a+b.) However, this is greatly due to the contribution in the Netherlands of no less than 58 non-heart beating donors of which one or two kidneys were used (2000: 40).

**Table 2.3 Demographic data on cadaveric organ donors, from the Eurotransplant region and used for a transplant from 1997 to 2001**

age	1997	1998	1999	2000	2001	%	2000-2001
0-15	107	90	100	90	89	5,3%	-1,1%
16-55	1180	1113	1068	1104	1098	65,5%	-0,5%
56-64	256	276	275	304	273	16,3%	-10,2%
>65	109	158	184	172	217	12,9%	26,2%
total	1652	1637	1627	1670	1677	100,0%	0,4%
sex	1997	1998	1999	2000	2001	%	2000-2001
female	667	663	693	727	735	43,8%	1,1%
male	985	974	934	943	942	56,2%	-0,1%
total	1652	1637	1627	1670	1677	100,0%	0,4%
blood group	1997	1998	1999	2000	2001	%	2000-2001
A	717	701	721	710	724	43,2%	2,0%
AB	77	68	65	68	76	4,5%	11,8%
B	186	181	179	168	184	11,0%	9,5%
O	672	687	662	724	693	41,3%	-4,3%
total	1652	1637	1627	1670	1677	100,0%	0,4%
cause of death	1997	1998	1999	2000	2001	%	2000-2001
accident	581	520	516	481	522	31,1%	8,5%
natural	984	1046	1041	1121	1092	65,1%	-2,6%
suicide	87	71	70	68	63	3,8%	-7,4%
total	1652	1637	1627	1670	1677	100,0%	0,4%

**Table 2.4a Type of cadaveric organ donation, used in a transplant, in the Eurotransplant region, from 1997 to 2001**

		1997	1998	1999	2000	2001	%	2000/2001	
kidney donor	SOD		471	490	468	457	487	30,0%	6,6%
	MOD		1137	1105	1110	1175	1136	70,0%	-3,3%
kidney donor	total		1608	1595	1578	1632	1623	100,0%	-0,6%
non-kidney donor	SOD		32	33	33	26	42	77,8%	61,5%
	MOD		12	9	16	12	12	22,2%	0,0%
non-kidney donor	total		44	42	49	38	54	100,0%	42,1%
total			1652	1637	1627	1670	1677	100,0%	0,4%

**Table 2.4b Type of cadaveric organ donation, used in a transplant, in the Eurotransplant region, by country of donor origin for 2001**

	kidney donor	kidney donor			non-kidney donor		non-kidney donor	total	overall total	%
		MOD	% MOD	total	SOD	MOD	% MOD			
Austria	49	133	73,1%	182	4	3	42,9%	7	189	11,3%
Belgium	22	184	89,3%	206	14	2	12,5%	16	222	13,2%
Germany	340	681	66,7%	1021	24	6	20,0%	30	1051	62,7%
Luxembourg	0	5	100,0%	5	0	0	0,0%	0	5	0,3%
Netherlands	72	114	61,3%	186	0	1	100,0%	1	187	11,2%
Slovenia	4	19	82,6%	23	0	0	0,0%	0	23	1,4%
total	487	1136	70,0%	1623	42	12	22,2%	54	1677	100,0%

SOD - single organ donor, thus only one non-renal organ  
MOD - multiple organ donor

### 2.1.3 Cadaveric organ donors from outside the Eurotransplant region

From outside the Eurotransplant region, organs from 248 donors were offered to the duty office of Eurotransplant (2000: N=291). Organs from 55 (2000: N=70) donors were actually accepted and transplanted within the Eurotransplant region [Addenda: Tables 2a and 2b].

This category consists of donor organs, offered by other European organ exchange organizations or individual centers from outside the Eurotransplant region, in case these organs could not be used within the local organization or country. Through this international collaboration, 8 donor hearts, 23 donor livers, 18 donor kidneys and 8

donor lungs were transplanted in the Eurotransplant region. No pancreata from outside Eurotransplant were offered nor transplanted in 2001.

### 2.1.4 Living donor transplants

In 2001, 615 living donors donated a kidney [Table 2.7]: +46 (+8.1%) as compared to 2000. Eight times more than in 2000 (N=116), a liver transplant was performed using a liver segment from a living donor (N=124). In 2001, 6 patients received the explanted native liver of a patient who got a liver transplant ['domino'] (2000: N=0). Two 'domino' heart transplants were performed during 2001 (2000: N=1).

## 2.2 Active cadaveric transplant waiting lists at the end of 2001

Compared with the waiting list at the end of 2000, the waiting lists for livers and for lungs increased significantly: +290 (+36.1%) and +53 (+12.6%) [Table 2.5]. Substantial decreases were present for the pancreas waiting list (-21.8%) and the heart waiting list (-12.1%). The kidney waiting list slightly decreased with -0.6% (N=12450). The heart + lung waiting list remained stable N=43 (2000: N=42). The number of so-called combined transplants like kidney + liver (N=32), liver + pancreas (N=12) and liver + lungs (N=7) is increasing over the last years. At the end of 2001, 10 patients were awaiting an intestinal transplant, isolated or combined.

**Table 2.5** Size of the active Eurotransplant waiting list, by organ, as per December 31, from 1997 to 2001

waiting list type	composition	1997	1998	1999	2000	2001	2000/2001
heart	heart	734	715	607	485	419	-13,6%
	heart+liver+lung	1	1	0	0	0	0,0%
	heart+lung	65	59	46	42	43	2,4%
	kidney+heart	10	6	2	4	5	25,0%
<b>total</b>		<b>810</b>	<b>781</b>	<b>655</b>	<b>531</b>	<b>467</b>	<b>-12,1%</b>
waiting list type	composition	1997	1998	1999	2000	2001	2000/2001
kidney	kidney	11165	11788	12080	12293	12268	-0,2%
	kidney+heart	10	6	2	4	5	25,0%
	kidney+liver	21	27	30	28	32	14,3%
	kidney+liver+pancreas	0	0	1	3	0	-100,0%
	kidney+lung	1	0	1	1	1	0,0%
	kidney+pancreas	127	154	199	195	144	-26,2%
<b>total</b>		<b>11324</b>	<b>11975</b>	<b>12313</b>	<b>12524</b>	<b>12450</b>	<b>-0,6%</b>
waiting list type	composition	1997	1998	1999	2000	2001	2000/2001
liver	heart+liver+lung	1	1	0	0	0	0,0%
	kidney+liver	21	27	29	28	32	14,3%
	kidney+liver+pancreas	0	1	1	3	0	-100,0%
	liver	346	462	558	765	1042	36,2%
	liver+lung	4	1	4	3	7	133,3%
	liver+pancreas	1	0	1	4	12	200,0%
<b>total</b>		<b>373</b>	<b>492</b>	<b>593</b>	<b>803</b>	<b>1093</b>	<b>36,1%</b>
waiting list type	composition	1997	1998	1999	2000	2001	2000/2001
lung	heart+lung	65	59	46	42	43	2,4%
	kidney+heart+lung	0	0	0	1	0	-100,0%
	kidney+lung	1	0	1	1	1	0,0%
	liver+lung	4	1	4	3	7	133,3%
	lung	211	223	345	373	422	13,1%
<b>total</b>		<b>281</b>	<b>283</b>	<b>396</b>	<b>420</b>	<b>473</b>	<b>12,6%</b>
waiting list type	composition	1997	1998	1999	2000	2001	2000/2001
pancreas	kidney+liver+pancreas	0	1	1	3	0	-100,0%
	kidney+pancreas	127	154	192	195	144	-26,2%
	liver+pancreas	2	0	1	4	12	200,0%
	pancreas	64	62	68	87	70	-19,5%
<b>total</b>		<b>193</b>	<b>217</b>	<b>262</b>	<b>289</b>	<b>226</b>	<b>-21,8%</b>
<b>Total</b>		<b>12981</b>	<b>13748</b>	<b>14219</b>	<b>14567</b>	<b>14709</b>	<b>1,0%</b>

## 2.3 Inflow on the waiting lists during 2001

Registrations concern listing for a first transplant as well as for repeat transplants [Table 2.6]. Compared with 2000, there were substantial increases of the number of registrations especially for a lung transplant and for a liver transplant respectively  $N=+20$  (+4.3%) and  $N=+110$  (+5.7%) in 2001. In contrast, the number of patients for heart and pancreas transplantation declined again, respectively with  $N=-51$  (-5.0%) and with  $N=-76$  (-17.4%). Listing for kidney transplantation in 2001 slightly decreased with 109 patients (-2.1%).

## 2.4 Outflow from the waiting list in 2001

### 2.4.1 Organ transplants from cadaveric donors

In 2001, 5634 cadaveric donor organs were used i.e.  $N=-154$  (-2.7%) as compared with 2000. [Table 2.7]. The largest drops were seen in pancreas, heart and liver transplants, namely,  $N=-27$  (-8.0%),  $N=-47$  (-7.3%) and  $N=-57$  (-4.9%) respectively. In addition, 8 intestine transplants were carried out. The majority of these intestine transplants were performed in Berlin ( $N=6$ ).

**Table 2.6 Registrations on the Eurotransplant waiting list, by organ from 1997 to 2001**

All registration events	1997	1998	1999	2000	2001	2000/2001
kidney	5222	5432	5450	5300	5191	-2,1%
heart	1358	1302	1119	975	926	-5,0%
lung	365	405	512	464	484	4,3%
liver	1501	1528	1663	1923	2033	5,7%
pancreas	297	362	427	437	361	-17,4%
New registrations	1997	1998	1999	2000	2001	2000/2001
kidney	4435	4564	4598	4553	4432	-2,7%
heart	1329	1280	1091	951	901	-5,3%
lung	348	384	488	443	459	3,6%
liver	1305	1371	1475	1696	1773	4,5%
pancreas	273	334	387	401	324	-19,2%
Re - registrations	1997	1998	1999	2000	2001	2000/2001
kidney	787	868	852	747	759	1,6%
heart	29	22	28	24	25	4,2%
lung	17	21	24	21	25	19,0%
liver	196	157	188	227	260	14,5%
pancreas	24	28	40	36	37	2,8%

### 2.4.2 Mortality on the waiting list & de-listing

In 2001, 1255 patients died whilst awaiting a first or repeat organ transplant, irrespective of their urgency code (2000:  $N=1218$ ) [Table 2.8]. Most of them were kidney ( $N=595$ ) and liver ( $N=304$ ) patients. Also the number of heart ( $N=203$ ) and lung patients ( $N=123$ ) who died were substantial.



**Table 2.7** Number of transplanted organs within the Eurotransplant area, by organ, by donor type from 1997 to 2001

Cadaver	1997	1998	1999	2000	2001	2001-2000
kidney	3151	3105	3096	3175	3150	-0,8%
heart	825	779	737	643	596	-7,3%
lung	341	434	452	463	465	0,4%
liver	1097	1071	1135	1169	1112	-4,9%
pancreas	226	256	308	338	311	-8,0%
total	5640	5645	5728	5788	5634	-2,7%
Living	1997	1998	1999	2000	2001	2001-2000
kidney	411	526	580	569	618	8,6%
heart	0	0	0	1	2	100,0%
lung	0	0	2	0	0	0,0%
liver	43	38	64	116	124	6,9%
total	454	564	646	686	744	8,5%

**Table 2.8** Mortality on the Eurotransplant Waiting List, from 1997-2001

	1997	1998	1999	2000	2001
heart	357	313	251	182	203
kidney	565	548	590	618	595
liver	215	211	214	279	304
lung	165	145	120	107	123
pancreas	28	25	25	32	30
total	1330	1242	1200	1218	1255



# 3. Kidney: donation, waiting lists, and transplants

## 3.1 Kidney donors

A total of 1784 potential kidney donors were reported to the central office of Eurotransplant in 2001 (Table 3.1). No kidneys were procured from 31 of the donors and, 169 kidneys were judged post procurement to be unfit for transplantation, mostly due to medical reasons (N=157).

3299 Kidneys were procured from 1753 cadaveric kidney donors and, finally, 3130 kidneys were transplanted originating from 1623 donors. In 2000 these figures were respectively 3273 procured from 1688 donors and 3129 kidneys transplanted from 1632 donors.

Characteristics of the 2001 kidney donor pool include (Table 3.2):

- The number of donors aged over 56 years remained stable (N=+4). In 2001, 470 (29% of the total number of kidney donors) as compared to the 466 in 2000 (29% of the total number of kidneys donors). However, the number of kidney donors over the age of 65 years is increasing (N=209)
- The number of pediatric kidney donors (0-15 years) remained nearly the same in 2001 (N=83) as in 2000 (N=86).
- Donor ABO blood group distribution in 2001 changed a little as compared to 2000, namely, ABO type O decreased with -1.6% in 2001 to 41.5% (2000: 43.1%). Small increases were observed in the other blood groups A (+0.2%), AB (+0.9%) and B (+0.5%).
- In 2001, an increase of 7,8% was observed in the category of “accident” donors (2001: N=512 versus N=475 in 2000)

**Table 3.1 Cadaveric donor kidneys in the Eurotransplant region in 2001**

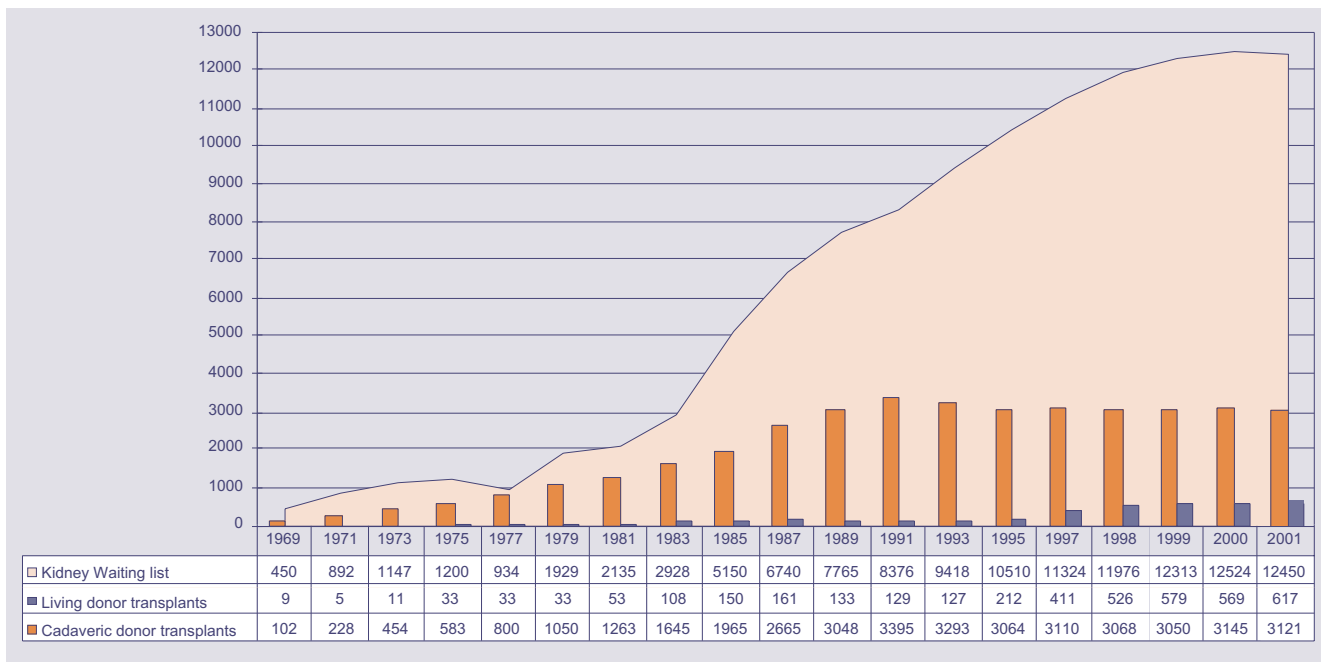
<b>Donors</b>							
donor country	Austria	Belgium	Germany	Luxembourg	Netherlands	Slovenia	total
cadaveric donors	204	245	1094	5	208	28	1784
not kidney donors	6	11	14	0	0	0	31
cadaveric kidney donors	198	234	1080	5	208	28	1753
<b>Kidneys</b>							
donor country	Austria	Belgium	Germany	Luxembourg	Netherlands	Slovenia	total
potential kidneys	396	468	2160	10	416	56	3506
kidneys not reported	2	1	12	0	4	1	20
reported kidneys	394	467	2148	10	412	55	3486
kidneys not procured	27	35	86	0	28	11	187
procured kidneys	367	432	2062	10	384	44	3299
kidneys not transplanted	9	29	97	0	31	3	169
kidneys transplanted	358	403	1965	10	353	41	3130

## 3.2 Waiting list

The total active kidney waiting list slightly dropped by 0.6% from 12524 in 2000 to 12450 in 2001 (Table 3.3; Figure 3.1). A similar decrease was seen for the total active kidney-only waiting list, albeit with major national differences: a decrease for Austria (-4.3%), Germany (-0.7%) and the Netherlands (-0.7%) and an increase for Belgium (+11.9%). Slovenia (-1 patient) and Luxembourg (-1 patient) did not change much.

**Table 3.2 Demographic data on cadaveric organ donors, whose kidneys were transplanted in the Eurotransplant region**

age (years)	1997	1998	1999	2000	2001	2001-2000
0-15	103	85	90	86	83	-3,5%
16-55	1148	1083	1047	1080	1070	-0,9%
56-64	251	271	263	299	261	-12,7%
65+	107	156	179	167	209	25,1%
total	1609	1595	1579	1632	1623	-0,6%
sex	1997	1998	1999	2000	2001	2001-2000
female	652	651	679	706	711	0,7%
male	957	944	900	926	912	-1,5%
total	1609	1595	1579	1632	1623	-0,6%
blood group	1997	1998	1999	2000	2001	2001-2000
A	695	686	700	701	701	0,0%
AB	76	67	64	61	75	23,0%
B	185	177	177	167	174	4,2%
O	653	665	638	703	673	-4,3%
total	1609	1595	1579	1632	1623	-0,6%
cause of death	1997	1998	1999	2000	2001	2001-2000
accident	568	513	505	475	512	7,8%
natural	958	1012	1005	1090	1052	-3,5%
suicide	83	70	69	67	59	-11,9%
total	1609	1595	1579	1632	1623	-0,6%



**Figure 3.1. Dynamics of the Eurotransplant kidney transplant waiting list and transplants between 1969 and 2001**

Characteristics of the 2001 kidney-only waiting list include (Table 3.3):

- Renal transplant candidates aged 65 years or more increased with +15,2% to 782 patients (2000: N=679). The number of pediatric kidney recipients rose in 2001 with +8 patients (+6.7%) to N=128 (2000: N=120). Increases were observed in Germany (N=+10) and Austria (N=+3) while the other countries showed slight decreases or remained equal.
- Kidney-only transplant candidates with ABO type O represented 50% or more of the waiting list in Belgium (59.9%), Luxembourg (75%) and The Netherlands (50.6%). Austria had 48.9%, Germany 46.1% and Slovenia 46.5% type O recipients.
- Austria had a substantial percentage of patients (22.3%) sensitized against HLA antigens (6% or more panel reactive antibodies (PRA)). The Netherlands had the highest number of patients awaiting a repeat transplant, namely, 20.6%. Slovenia had none awaiting a retransplant!

**Table 3.3 Active cadaveric kidney transplant waiting list as per December 31, 2001 - characteristics**

Kidney only waiting list								
age (years)	Austria	Belgium	Germany	Luxembourg	Netherlands	Slovenia	total	%
0-15	5	7	99	0	17	0	128	1,0%
16-55	445	547	6294	12	825	77	8200	66,8%
56-64	194	150	2491	0	299	24	3158	25,7%
65 +	55	64	536	0	127	0	782	6,4%
total	699	768	9420	12	1268	101	12268	100,0%
blood group	Austria	Belgium	Germany	Luxembourg	Netherlands	Slovenia	total	%
A	286	240	3867	4	456	36	4889	39,9%
AB	8	12	230	0	27	4	281	2,3%
B	63	56	984	0	143	13	1259	10,3%
O	342	460	4339	8	641	47	5837	47,6%
not yet reported	0	0	0	0	1	1	2	0,0%
total	699	768	9420	12	1268	101	12268	100,0%
% PRA current	Austria	Belgium	Germany	Luxembourg	Netherlands	Slovenia	total	%
0-5 %	534	680	8558	8	1080	61	10921	89,0%
6-84 %	138	75	785	3	154	39	1194	9,7%
85-100 %	15	6	48	1	30	1	101	0,8%
not yet reported	12	7	29	0	4	0	52	0,4%
total	699	768	9420	12	1268	101	12268	100,0%
sequence	Austria	Belgium	Germany	Luxembourg	Netherlands	Slovenia	total	%
first	566	623	8089	10	1007	101	10396	84,7%
repeat	133	145	1331	2	261	0	1872	15,3%
total	699	768	9420	12	1268	101	12268	100,0%
time waiting (dialysis) (years)	Austria	Belgium	Germany	Luxembourg	Netherlands	Slovenia	total	%
pre-emptive	21	57	65	0	60	2	205	1,7%
0-1	352	366	2122	9	377	21	3247	26,5%
2-4	273	201	4815	2	676	46	6013	49,0%
5+	53	144	2418	1	155	32	2803	22,8%
total	699	768	9420	12	1268	101	12268	100,0%
time waiting (registration) (years)	Austria	Belgium	Germany	Luxembourg	Netherlands	Slovenia	total	%
0-1	481	507	4013	10	496	61	5568	45,4%
2-4	180	143	4153	2	655	40	5173	42,2%
5 +	38	118	1254	0	117	0	1527	12,4%
total	699	768	9420	12	1268	101	12268	100,0%
match - residency	Austria	Belgium	Germany	Luxembourg	Netherlands	Slovenia	total	%
no	24	120	10	0	1	1	156	1,3%
yes	675	648	9410	12	1267	100	12112	98,7%
total	699	768	9420	12	1268	101	12268	100,0%

- The number of patients considered as non-residents, i.e. patients who were neither residing nor being treated in one of the six Eurotransplant countries, is decreasing in Belgium from 27.7% (N=208) in 1999 to 22% in 2000 (N=151) to 15.6% in 2001 (N=120). In Austria the number of non-residents remained 24 in 2001, exactly the same as in 2000 (N=24).
- Due to a re-definition of waiting time as per April 5, 2000, namely as of the date of first dialysis, the number of patients waiting five years or more for a kidney transplant changed completely. The data for both options for the whole year 2001 are presented in table 3.3. The new definition of waiting time i.e. from start of dialysis (allocation time) shows nearly twice as many so-called long-waiting patients as compared to the old situation (registration time), namely, 2803 patients versus 1527. According to this new definition it was of interest to note that Germany (25.7%) and Slovenia (31.7%) had the highest percentage of these long-dialyzing patients. Luxembourg (1 patient), the Netherlands (12.2%), Belgium (18.8%) and Austria (7.6%) had sub-

stantially lower percentages. Interesting is also the number of patients who are not yet on dialysis (pre-emptive patients) namely N=205, i.e. 1.7%. The Netherlands and Belgium had respectively 4.7% and 7.4% of these pre-emptive patients on their waiting list.

### 3.3 Inflow to the waiting list in 2001

The total number of registrations on the (cadaveric) kidney transplant waiting list in 2001 (N=5185) again showed an increase of +5.4% as compared to 2000 (N=4921) (Table 3.4). The increase in Germany (N=+133), the Netherlands (N=+119), Belgium (N=+80) and Austria (N=+48) was counterbalanced by sharp decreases in Slovenia (N=-122). This was due to the fact that Slovenia entered in 2000 with all its kidney patients at the Eurotransplant waiting list at once. If one add the 6 patients from outside Eurotransplant countries registered for the Acceptable Mismatch Program than the total number of registrations amounts to 5191 (table 2.6). New registrations for patients who required re-transplantation accounted for 14.6% (2000: 13.1%).

Less pediatric patients (N=13) were registered in 2001 (N=145), whereas 32.1% was accounted by the patients aged 56 years or more. These figures are +2.1% higher than in 2000. The number of senior patients, i.e. over the age of 65 years was 472, i.e. 9.1% (2000: N=361 or 7.3%). The inflow of ABO type O patients amounted to 39.2% (2000: 39.7%), which is much lower than the current portion on the active kidney-only waiting list (46.6%).

### 3.4 Outflow from the waiting list during 2001

#### 3.4.1 Kidney transplant activity

A total of 3120 (2000: N=3145) cadaveric kidney transplants (kidney only (N=2809) and kidney + other organs (N=311) was performed in 2001 (-0.8%)

(Table 3.5). A 10.1% decrease of multi-organ kidney transplants (from 346 in 2000 to 311 in 2001) was observed. Table 3.5 also summarizes the 2809 kidney-only of which 28 'en-bloc' transplants carried out in 2001:

- Almost nineteen percent of kidney-only transplants took place between donors and recipients with zero HLA-A, B, DR mismatches (2000: 21.5%). This drop is mainly due to the success of the Eurotransplant Senior Program where prospective HLA-matching between donor and recipient is not taken into account.
- The number of pediatric patients who received transplants in 2001 (N=89 i.e. 3.2%) was 11.9% lower than in 2000 (N = 101 i.e. 3.6%). This was due to 7 less cadaveric kidney transplants in the Netherlands (2000: N=27). Furthermore, one has to realize that quite a substantial number of pediatric kidney patients have been registered for a living-related transplant on the waiting list due to legal requirements in the different participating countries.
- Transplantation (kidney-only) of elderly patients, aged 65 years or more, occurred in 447 cases (15.9%). In 2000, 1999 and 1998 these figures were respectively 401 (14.3%), 228 (8.3%) and 182 (6.5%). This is certainly due to the implementation and the success of the Eurotransplant Senior Program ('old for old' program).
- (Long) Waiting time i.e. since the date of first dialysis is an important factor in the ET Kidney Allocation System. In 2001, 23.9% of the patients who had been dialyzing for five years or more were transplanted versus 17% in 2000. Considerable national differences were observed: Austria 3.0%, Belgium 3.7%, Germany 34.1%, Luxembourg 11.1%, The Netherlands 13.6% and Slovenia none.
- In 2001, 23 so-called pre-emptive kidney-only transplants were performed in ET.
- The number of non-residents transplanted remained very low (N=15) (2000: N=25), following the registration stop in Belgium and the re-definition of non-resident for the purpose of the ET Kidney Allocation System (see 3.2).
- Transplants, realized with kidneys procured from non-heart-beating (NHB) donors, increased to 110 (2000: 84) thanks to the major efforts done in The Netherlands. From 58 Dutch donors 106 kidneys were transplanted. In The Netherlands 105 and in Austria 5 NHB kidney-transplants were performed. Belgium and Austria both reported 1 NHB donor of which 4 kidneys were used.

In addition, 74 'highly immunized' (i.e. currently and / or historically) patients received transplants (2000: 52). Of these, 30 patients received kidneys via the Highly Immunized Trial (HIT) protocol (2000:N=37), and 44 patients via the Acceptable Mismatch program (2000:N=15). Via the regular ETKAS-allocation program 35 highly immunized patients (i.e. at the time of transplantation) received a kidney.

Transplant activities and kidney exchange are shown in detail in the Addenda. A good balance between national kidney procurement and transplantation was maintained throughout the year, while permitting an average local/regional kidney-only transplant rate of 61.1% (1715/2809) (2000: 58.8%). It should be noted that The Netherlands is considered as one region.

**Table 3.5 Kidney transplant characteristics - 2001**

**Cadaveric donor kidney transplants**

type of transplant	Austria	Belgium	Germany	Luxembourg	Netherlands	Slovenia	total	%
kidney only	336	340	1715	9	334	47	2781	89,1%
both kidneys	2	8	18	0	0	0	28	0,9%
both kidneys + pancreas	0	2	0	0	0	0	2	0,1%
kidney + both lungs	0	0	1	0	0	0	1	0,0%
kidney + heart	1	1	5	0	0	0	7	0,2%
kidney + pancreas	21	21	204	0	23	0	269	8,6%
kidney + split liver	0	1	2	0	0	0	3	0,1%
kidney + whole liver	2	6	19	0	2	0	29	0,9%
<b>total</b>	<b>362</b>	<b>379</b>	<b>1964</b>	<b>9</b>	<b>359</b>	<b>47</b>	<b>3120</b>	<b>100,0%</b>

<b>Kidney only transplant (including kidney en bloc)</b>								
HLA - A, B, DR mismatches	Austria	Belgium	Germany	Luxembourg	Netherlands	Slovenia	total	%
0	33	36	391	0	56	7	523	18,6%
1	19	23	144	0	46	5	237	8,4%
2	66	113	397	2	102	10	690	24,6%
3	121	132	455	6	89	18	821	29,2%
4	67	38	187	1	30	6	329	11,7%
5	26	3	101	0	9	0	139	4,9%
6	6	0	31	0	0	0	37	1,3%
not calculated	0	3	27	0	2	1	33	1,2%
<b>total</b>	<b>338</b>	<b>348</b>	<b>1733</b>	<b>9</b>	<b>334</b>	<b>47</b>	<b>2809</b>	<b>100,0%</b>

age (years)	Austria	Belgium	Germany	Luxembourg	Netherlands	Slovenia	total	%
0-15	2	10	56	0	20	1	89	3,2%
16-55	213	211	980	9	217	36	1666	59,3%
56-64	72	78	377	0	70	10	607	21,6%
65+	51	49	320	0	27	0	447	15,9%
<b>total</b>	<b>338</b>	<b>348</b>	<b>1733</b>	<b>9</b>	<b>334</b>	<b>47</b>	<b>2809</b>	<b>100,0%</b>

blood group	Austria	Belgium	Germany	Luxembourg	Netherlands	Slovenia	total	%
A	154	162	755	4	133	18	1226	43,6%
AB	27	20	119	0	15	1	182	6,5%
B	44	33	240	3	46	5	371	13,2%
O	113	133	619	2	140	23	1030	36,7%
<b>total</b>	<b>338</b>	<b>348</b>	<b>1733</b>	<b>9</b>	<b>334</b>	<b>47</b>	<b>2809</b>	<b>100,0%</b>

PRA	Austria	Belgium	Germany	Luxembourg	Netherlands	Slovenia	total	%
0-5%	247	317	1560	8	281	28	2441	86,9%
6-84%	78	31	159	1	44	19	332	11,8%
85-100%	13	0	13	0	9	0	35	1,2%
not reported	0	0	1	0	0	0	1	0,0%
<b>total</b>	<b>338</b>	<b>348</b>	<b>1733</b>	<b>9</b>	<b>334</b>	<b>47</b>	<b>2809</b>	<b>100,0%</b>

wait (months)	Austria	Belgium	Germany	Luxembourg	Netherlands	Slovenia	total	%
0-5	73	116	176	1	6	14	386	13,7%
6-11	40	55	121	3	30	5	254	9,0%
12-23	86	81	261	2	55	28	513	18,3%
24-59	129	83	584	2	187	0	985	35,1%
60 +	10	13	591	1	56	0	671	23,9%
<b>total</b>	<b>338</b>	<b>348</b>	<b>1733</b>	<b>9</b>	<b>334</b>	<b>47</b>	<b>2809</b>	<b>100,0%</b>

sequence	Austria	Belgium	Germany	Luxembourg	Netherlands	Slovenia	total	%
first	279	306	1466	9	272	46	2378	84,7%
repeat	59	42	267	0	62	1	431	15,3%
<b>total</b>	<b>338</b>	<b>348</b>	<b>1733</b>	<b>9</b>	<b>334</b>	<b>47</b>	<b>2809</b>	<b>100,0%</b>

match - residency	Austria	Belgium	Germany	Luxembourg	Netherlands	Slovenia	total	%
no	0	12	3	0	0	0	15	0,5%
yes	338	336	1730	9	334	47	2794	99,5%
<b>total</b>	<b>338</b>	<b>348</b>	<b>1733</b>	<b>9</b>	<b>334</b>	<b>47</b>	<b>2809</b>	<b>100,0%</b>

type of cadaveric donor	Austria	Belgium	Germany	Luxembourg	Netherlands	Slovenia	total	%
heartbeating	333	348	1733	9	229	47	2699	96,1%
non-heartbeating	5	0	0	0	105	0	110	3,9%
<b>total</b>	<b>338</b>	<b>348</b>	<b>1733</b>	<b>9</b>	<b>334</b>	<b>47</b>	<b>2809</b>	<b>100,0%</b>

origin / destination	Austria	Belgium	Germany	Luxembourg	Netherlands	Slovenia	total	%
international	78	126	197	8	80	24	513	18,3%
national	15	36	540	0	254	0	845	30,1%
regional / local	245	186	996	1	0	23	1451	51,7%
<b>total</b>	<b>338</b>	<b>348</b>	<b>1733</b>	<b>9</b>	<b>334</b>	<b>47</b>	<b>2809</b>	<b>100,0%</b>

### 3.4.2 Mortality on the waiting list and de-listing

In 2001, a total of 595 patients died while on the waiting list (Table 3.4). (2000: N=618). In addition, a further 571 patients (2000: N=539) were removed from the waiting list for various reasons, e.g. too poor condition, received living donor transplant, transplanted outside Eurotransplant, or no longer interested.

### 3.5 Living donor kidney transplants

Living donor kidney transplantation showed an increase of 8.4%: 617 donors in 2001 versus 569 donors in 2000; as such, it represents 18.0% of the total Eurotransplant kidney-only transplant activity (Table 3.6). The number of living related increased with 6.0% in 2001, namely N=409 (2000: N=386) while the number of living unrelated donor kidney transplants even increased with 13.7% from 183 in 2000 to 208 in 2001.

A survey of the living donor kidney transplant activity by country and by center is also present in the Addenda. (Table 3b).

**Table 3.6 Living donor kidney transplants - kidney only 2001**

Kidney only	Austria	Belgium	Germany	Netherlands	total	%
related	39	10	255	105	409	66,3%
non related	12	3	133	60	208	33,7%
total	51	13	388	165	617	100,0%
Related	Austria	Belgium	Germany	Netherlands	total	%
father	11	2	50	16	79	19,3%
mother	13	4	103	26	146	35,7%
other family	3	1	28	12	44	10,8%
sibling	12	3	74	51	140	34,2%
total	39	10	255	105	409	100,0%
Non related	Austria	Belgium	Germany	Netherlands	total	%
other	1	0	16	12	29	13,9%
spouse	11	3	117	48	179	86,1%
total	12	3	133	60	208	100,0%
recipient age	Austria	Belgium	Germany	Netherlands	total	%
0-15	1	1	24	6	32	5,2%
16-55	43	11	281	130	465	75,4%
56-64	4	1	66	19	90	14,6%
65+	3	0	17	10	30	4,9%
total	51	13	388	165	617	100,0%
sequence	Austria	Belgium	Germany	Netherlands	total	%
first	48	11	360	155	574	93,0%
repeat	3	2	28	10	43	7,0%
total	51	13	388	165	617	100,0%



# 4. Thoracic organs: donation, waiting lists, and transplants

## 4.1 Thoracic organ donors

### 4.1.1 Heart donors

In 2001, 1050 potential donors were reported to the central office of Eurotransplant. Of the hearts accepted for transplantation, 35.3% (N=318) were discarded for heart transplantation during procurement. Hearts from a total of 593 donors were transplanted, which represents a decrease of 6.3% as compared to 2000 (N=633). Hearts from 21 donors were used for combined heart+lung transplants. Only 3.9% of heart donors (N=23) were aged over 55 years compared with 28.3% and 20.1% of kidney and liver donors, respectively (Table 4.1).

### 4.1.2 Lung donors

Table 4.2 summarizes the fate of lungs from the 489 potential lung donors reported to the central office of Eurotransplant in 2001 (2000: N=527). Upon inspection, 10.1% (N=51) of donor lungs were found to be unsuitable for transplantation (2000: 5%). 455 lungs from 241 donors were transplanted (2000: N=426 from 245 donors). 79 single lung and a total of 172 double lung transplantations were performed. In 5 cases, both lungs were used for 2 single lung transplants (2000: N=20). There were 21 patients who received a combined heart + lung.

Table 4.3 shows that in 2001, 4.1% of the lungs used for a transplant were from donors over the age of 56. (2000:4.5%)

**Table 4.1 Demographic data on cadaveric donors whose hearts were transplanted in the Eurotransplant region**

age (years)	1997	1998	1999	2000	2001	2001-2000
0-15	61	55	48	43	43	0,0%
16-55	693	632	606	555	527	-5,0%
56-64	46	57	51	31	23	-25,8%
65+	3	2	5	4	0	-100,0%
total	803	746	710	633	593	-6,3%
sex	1997	1998	1999	2000	2001	2001-2000
female	313	273	293	257	237	-7,8%
male	490	473	417	376	356	-5,3%
total	803	746	710	633	593	-6,3%
blood group	1997	1998	1999	2000	2001	2001-2000
A	354	327	310	288	251	-12,8%
AB	41	25	26	17	25	47,1%
B	89	86	82	75	62	-17,3%
O	319	308	292	253	255	0,8%
total	803	746	710	633	593	-6,3%
donor cause of death	1997	1998	1999	2000	2001	2001-2000
accident	357	327	287	267	277	3,7%
natural	394	382	380	326	277	-15,0%
suicide	52	37	43	40	39	-2,5%
total	803	746	710	633	593	-6,3%

## 4.2 Waiting lists

The number of heart transplant candidates on the active waiting list as per December 31, 2001 (N=467) decreased again by 4.5% as compared with the 2000 year's end waiting list (N=489)(Table 4.4; Figure 4.1).

The heart+lung waiting list remained nearly equal with 43 patients (2000: N=42), while the lung-only waiting list increased in 2001 with 13.1% (N=422) (Tables 4.5, 4.6; Figure 4.2).

**Table 4.2 Cadaveric donor lungs in the Eurotransplant region in 2001**

<b>Donors</b>							
donor country	Austria	Belgium	Germany	Luxembourg	Netherlands	Slovenia	total
cadaveric donors	204	245	1094	5	208	28	1784
not lung donors	121	166	840	5	154	9	1295
cadaveric lung donors	83	79	254	0	54	19	489
<b>Lungs</b>							
donor country	Austria	Belgium	Germany	Luxembourg	Netherlands	Slovenia	total
potential lungs	166	158	508	0	108	38	978
not reported	4	2	4	0	1	0	11
reported lungs	162	156	504	0	107	38	967
not procured	77	64	234	0	62	24	461
procured	85	92	270	0	45	14	506
not transplanted	14	5	28	0	1	3	51
transplanted	71	87	242	0	44	11	

**Table 4.3 Demographic data on cadaveric organ donors, whose lungs were transplanted in the Eurotransplant region**

age (years)	1997	1998	1999	2000	2001	2000/2001
0-15	13	16	16	11	16	45,5%
16-55	154	197	189	222	215	-3,2%
56-64	2	12	14	11	9	-18,2%
65+	0	0	1	0	1	100,0%
total	169	225	220	244	241	-1,2%
sex	1997	1998	1999	2000	2001	2000/2001
female	68	95	111	118	119	0,8%
male	101	130	109	126	122	-3,2%
total	169	225	220	244	241	-1,2%
blood group	1997	1998	1999	2000	2001	2000/2001
A	82	96	87	119	102	-14,3%
AB	2	10	9	6	6	0,0%
B	21	24	26	21	23	9,5%
O	64	95	98	98	110	12,2%
total	169	225	220	244	241	-1,2%
cause of death	1997	1998	1999	2000	2001	2000/2001
accident	83	97	87	91	95	4,4%
natural	70	120	121	141	135	-4,3%
suicide	16	8	12	12	11	-8,3%
total	169	225	220	244	241	-1,2%

Characteristics of the heart-only waiting list (Table 4.4) include:

- Differences of heart-only waiting list size exists between the ET countries, in particular when expressed per million inhabitants (pmi), e.g. the Netherlands 1.9 pmi versus Austria 4.5 pmi. Germany and Belgium were in between with 3.7 pmi and 3.5 pmi respectively.
- Patients with ABO blood group type O made up 35.6% of the heart waiting list, nearly 8% less than in 2000 (43.4%). An increase of 9% was noted in blood group A patients now consisting of 51.1% of the waiting list.
- Patients aged over 56 years (N=175) made up 41.8% of the total heart waiting list, a decrease of 5.4% as compared with 2000 (N=231).
- In Germany, 40 patients have already accrued a waiting time of at least 1 year, which is considerably less than the 75 patients at the end of 2000.

Characteristics of the heart+lung waiting list (Table 4.5) include:

- 44.2% (N=19) of the patients had been waiting for one year or more by the end of 2001 (2000:N=21 or 50%).

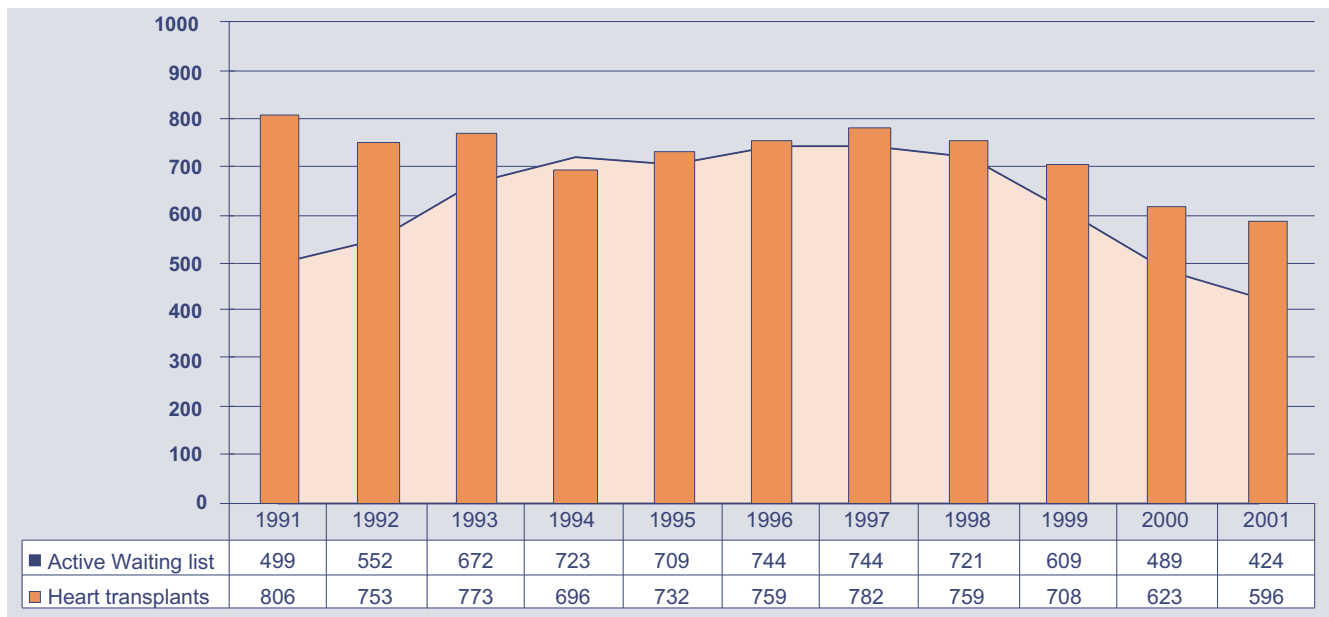


Figure 4.1. Dynamics of the Eurotransplant heart waiting list and transplants between 1991 and 2001

Table 4.4 Active heart transplant waiting list as per December 31, 2001 - characteristics

Heart only waiting list							
age (years)	Austria	Belgium	Germany	Netherlands	Slovenia	total	%
0-15	2	0	16	1	0	19	4,5%
16-55	13	24	160	22	6	225	53,7%
56-64	19	11	110	7	2	149	35,6%
65 +	3	1	21	1	0	26	6,2%
total	37	36	307	31	8	419	100,0%
blood group	Austria	Belgium	Germany	Netherlands	Slovenia	total	%
A	18	23	156	12	5	214	51,1%
AB	1	1	17	2	0	21	5,0%
B	4	1	26	3	1	35	8,4%
O	14	11	108	14	2	149	35,6%
total	37	36	307	31	8	419	100,0%
sequence	Austria	Belgium	Germany	Netherlands	Slovenia	total	%
first	37	34	298	31	8	408	97,4%
repeat	0	2	9	0	0	11	2,6%
total	37	36	307	31	8	419	100,0%
registration time (months)	Austria	Belgium	Germany	Netherlands	Slovenia	total	%
0 - 5	24	28	173	11	2	238	56,8%
6-11	9	6	94	13	2	124	29,6%
12-23	1	1	35	5	3	45	10,7%
24 +	3	1	5	2	1	12	2,9%
total	37	36	307	31	8	419	100,0%
match - residency	Austria	Belgium	Germany	Netherlands	Slovenia	total	%
no	1	0	0	0	0	1	0,2%
yes	36	36	307	31	8	418	99,8%
total	37	36	307	31	8	419	100,0%

**Table 4.5 Active heart + lung transplant waiting list as per December 31, 2001 - characteristics**

**Heart + lung only waiting list**

age (years)	Austria	Belgium	Germany	Netherlands	total	%
0-15	1	0	2	0	3	7,0%
16-55	2	2	33	2	39	90,7%
56-64	0	0	1	0	1	2,3%
total	3	2	36	2	43	100,0%

blood group	Austria	Belgium	Germany	Netherlands	total	%
A	2	2	13	1	18	41,9%
AB	0	0	0	0	0	
B	0	0	2	0	2	4,7%
O	1	0	21	1	23	53,5%
total	3	2	36	2	43	100,0%

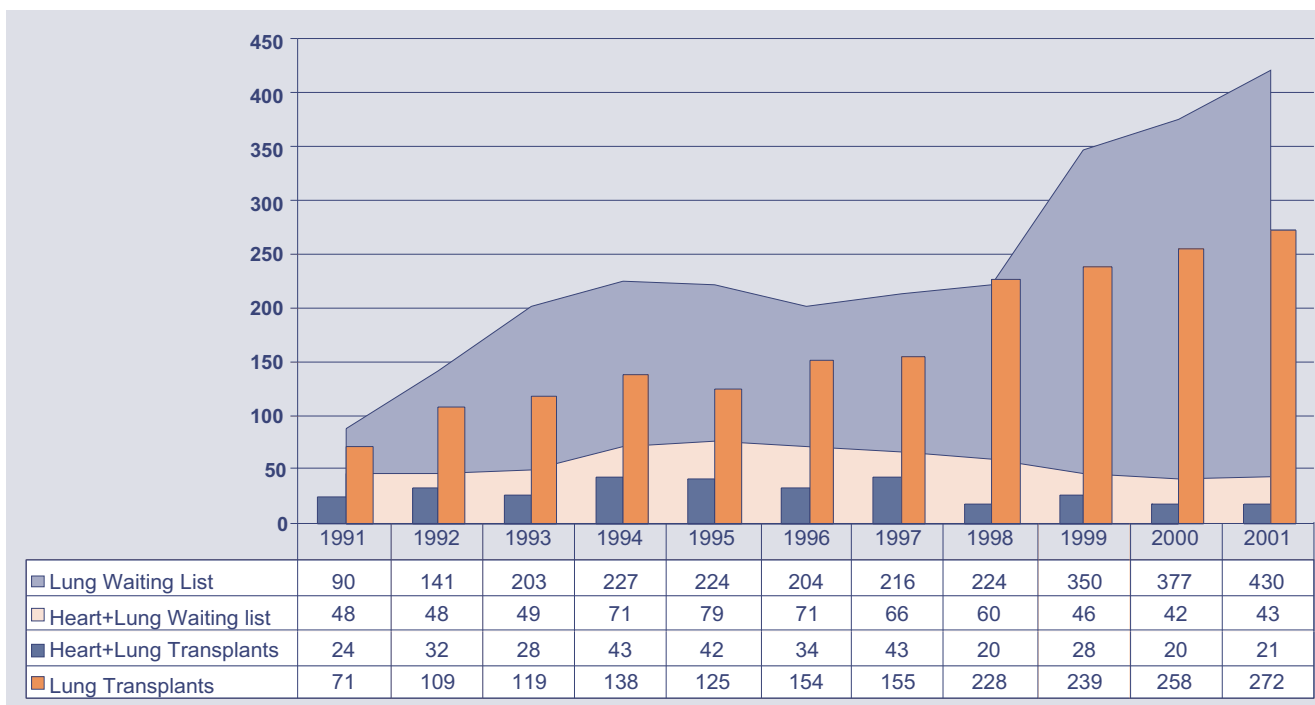
sequence	Austria	Belgium	Germany	Netherlands	total	%
first	3	2	36	2	43	100,0%
total	3	2	36	2	43	100,0%

registration time (months)	Austria	Belgium	Germany	Netherlands	total	%
0-5	1	1	15	1	18	41,9%
6-11	0	1	4	1	6	14,0%
12-23	1	0	5	0	6	14,0%
24+	1	0	12	0	13	30,2%
total	3	2	36	2	43	100,0%

match - residency	Austria	Belgium	Germany	Netherlands	total	%
no	1	0	1	0	2	4,7%
yes	2	2	35	2	41	95,3%
total	3	2	36	2	43	100,0%



**Figure 4.2. Dynamics of the Eurotransplant heart + lung waiting list and heart + lung transplants and Eurotransplant lung waiting list and lung transplants between 1991 and 2001**

**Table 4.6 Active lung transplant waiting list as per December 31, 2001 - characteristics**

<b>Lung only waiting list</b>						
type of lung	Austria	Belgium	Germany	Netherlands	total	%
left lung	1	2	19	1	23	5,5%
right lung	1	2	41	1	45	10,7%
left or right	0	5	20	2	27	6,4%
both lungs	21	30	228	27	306	72,5%
left or both	1	0	0	0	1	0,2%
right or both	0	1	0	3	4	0,9%
left, right or both	4	0	0	11	15	3,6%
no choice	0	0	1	0	1	0,2%
<b>total</b>	<b>28</b>	<b>40</b>	<b>309</b>	<b>45</b>	<b>422</b>	<b>100,0%</b>
age (years)	Austria	Belgium	Germany	Netherlands	total	%
6-15	2	0	3	2	7	1,7%
16-55	15	29	230	35	309	73,2%
56-64	10	11	72	7	100	23,7%
65+	1	0	4	1	6	1,4%
<b>total</b>	<b>28</b>	<b>40</b>	<b>309</b>	<b>45</b>	<b>422</b>	<b>100,0%</b>
blood group	Austria	Belgium	Germany	Netherlands	total	%
A	9	12	114	15	150	35,5%
AB	0	0	9	0	9	2,1%
B	1	6	29	2	38	9,0%
O	18	22	157	28	225	53,3%
<b>total</b>	<b>28</b>	<b>40</b>	<b>309</b>	<b>45</b>	<b>422</b>	<b>100,0%</b>
sequence	Austria	Belgium	Germany	Netherlands	total	%
first	27	40	298	45	410	97,2%
repeat	1	0	11	0	12	2,8%
<b>total</b>	<b>28</b>	<b>40</b>	<b>309</b>	<b>45</b>	<b>422</b>	<b>100,0%</b>
registration time (months)	Austria	Belgium	Germany	Netherlands	total	%
0-5	18	17	103	11	149	35,3%
6-11	5	18	77	9	109	25,8%
12-23	2	2	78	12	94	22,3%
24+	3	3	51	13	70	16,6%
<b>total</b>	<b>28</b>	<b>40</b>	<b>309</b>	<b>45</b>	<b>422</b>	<b>100,0%</b>
match - residency	Austria	Belgium	Germany	Netherlands	total	%
no	2	0	0	0	2	0,5%
yes	26	40	309	45	420	99,5%
<b>total</b>	<b>28</b>	<b>40</b>	<b>309</b>	<b>45</b>	<b>422</b>	<b>100,0%</b>

Characteristics of the lung waiting list (Table 4.6) include:

- Belgium had the highest number of patients on the lung transplant waiting list: 3.9 patients per million inhabitants. The Netherlands 2.8 patients per million inhabitants (2000: 3.8 pmi)
- Most patients on the lung waiting list (N=326 i.e. 77.3%) were awaiting double lung transplantation.
- 225 lung patients (53.3%!) had blood group O.
- 164 patients had been on the waiting list for one year or more at the end of 2001, especially in Germany (N=129) and in The Netherlands (N=25).

### 4.3 Inflow to the thoracic waiting list in 2001

The number of new registrations for a heart transplantation dropped again in 2001 with 5.1% (N=48) to 896 patients (2000: 944). Pediatric patients comprised 6.9% (N=64) of the total inflow, while 39.2% was accounted for by the patients aged 56 years or more of which 6.2% (N=57) was over the age of 65 years. The ABO type A again had a higher influx (47.0%) than the ABO type O (36.2%) (Table 4.7).

**Table 4.7 Heart waiting list 2001 : inflow and outflow**

<b>Inflow on heart waiting list - 2001</b>							
registration type	Austria	Belgium	Germany	Netherlands	Slovenia	total	%
new	106	113	614	55	8	896	97,3%
re-registration	4	5	15	1	0	25	2,7%
total	110	118	629	56	8	921	100,0%
age (years)	Austria	Belgium	Germany	Netherlands	Slovenia	total	%
0-5	0	1	33	1	0	35	3,8%
6-15	6	2	19	2	0	29	3,2%
16-55	41	74	337	40	4	496	53,9%
56-64	51	32	206	12	3	304	33,0%
65+	12	9	34	1	1	57	6,2%
total	110	118	629	56	8	921	100,0%
blood group	Austria	Belgium	Germany	Netherlands	Slovenia	total	%
A	51	60	296	23	3	433	47,0%
AB	6	5	48	3	0	62	6,7%
B	19	6	62	3	2	92	10,0%
O	34	46	223	27	3	333	36,2%
not reported	0	1	0	0	0	1	0,1%
total	110	118	629	56	8	921	100,0%
<b>Outflow from heart waiting list - 2001</b>							
reason	Austria	Belgium	Germany	Netherlands	Slovenia	total	
transplanted	64	84	406	38	4	596	
reason	Austria	Belgium	Germany	Netherlands	Slovenia	total	
died on the waiting list	24	23	143	11	2	203	
age (years)	Austria	Belgium	Germany	Netherlands	Slovenia	total	%
0-5	0	0	10	1	0	11	5,4%
6-15	2	1	3	0	0	6	3,0%
16-55	10	17	67	8	0	102	50,3%
56-64	9	4	57	2	2	74	36,5%
65+	3	1	6	0	0	10	4,9%
total	24	23	143	11	2	203	100,0%
blood group	Austria	Belgium	Germany	Netherlands	Slovenia	total	%
A	7	11	62	7	1	88	43,3%
AB	2	0	4	0	0	6	3,0%
B	6	3	22	0	1	32	15,8%
O	9	8	55	4	0	76	37,4%
not reported	0	1	0	0	0	1	0,5%
total	24	23	143	11	2	203	100,0%
<b>Outflow from heart waiting list - 2001 - delistings</b>							
reason for delisting	Austria	Belgium	Germany	Netherlands	Slovenia	total	
better patient / no txp.	20	5	98	9	2	134	
other	4	0	25	0	0	29	
poor patient/no txp.	0	4	12	0	0	16	
total	24	9	135	9	2	179	

**Table 4.8 Heart+lung waiting list - 2001 : inflow and outflow**

<b>Inflow on heart+lung waiting list - 2001</b>						
registration type	Austria	Belgium	Germany	Netherlands	total	%
new	2	7	26	4	39	100,0%
total	2	7	26	4	39	100,0%
age (years)	Austria	Belgium	Germany	Netherlands	total	%
0-15	1	1	3	0	5	12,8%
16-55	0	5	23	4	32	82,1%
56-64	1	1	0	0	2	5,1%
total	2	7	26	4	39	100,0%
blood group	Austria	Belgium	Germany	Netherlands	total	%
A	1	7	12	2	22	56,4%
AB	0	0	0	0	0	
B	0	0	5	0	5	12,8%
O	1	0	9	2	12	30,8%
total	2	7	26	4	39	100,0%
<b>Outflow from heart + lung waiting list - 2001</b>						
reason	Austria	Belgium	Germany	Netherlands	total	
transplanted	2	4	13	2	2	
reason	Austria	Belgium	Germany	Netherlands	total	
died on the waiting list	2	2	8	12	24	
age (years)	Austria	Belgium	Germany	total	%	
16-55	1	1	8	10	83,3%	
56-64	1	1	0	2	16,7%	
total	2	2	8	12	100,0%	
blood group	Austria	Belgium	Germany	total	%	
A	1	2	3	6	50,0%	
B	0	0	2	2	16,7%	
O	1	0	3	4	33,3%	
total	2	2	8	12	100,0%	
<b>Outflow from heart+lung waiting list - 2001 - delistings</b>						
reason for delisting	Germany	Netherlands	total			
better patient/no txp.	1	2	3			

The annual number of registrations for a heart+lung transplant is only 39, one less than in 2000 (Table 4.8). Five patients were below the age of 16 years (2000: 1).

In 2001, an 11.8% increase (N=+51) in the number of registrations for a lung transplant was observed. In 2001, 482 new patients were registered as compared to the 431 in 2000. The number of children registered increased from 7 in 2000 to 16 in 2001.

## 4.4 Outflow from the waiting list in 2001

### 4.4.1 Thoracic organ transplant activities

Heart transplants decreased by 4.3% (N=596) compared with 2000 (N=623) (Tables 4.7 and 4.10). Only 2 so-called Adomino@ heart transplants were performed. The number of heart retransplants was low in 2001 namely 1.8% (N=10). In 2001, 13 heart transplants were carried out in neonates and small infants (2000: N=10) a procedure only carried out in Germany (N=8). Forty-four patients over the age of 65 years received a heart trans-

**Table 4.9 Cadaveric lung waiting list 2001 : inflow and outflow**

**Inflow on lung waiting list - 2001**

registration type	Austria	Belgium	Germany	Netherlands	total	%
new	63	75	283	36	457	94,8%
re-reg	11	0	14	0	25	5,2%
total	74	75	297	36	482	100,0%

age (years)	Austria	Belgium	Germany	Netherlands	total	%
0-15	4	1	8	3	16	3,3%
16-55	44	59	237	28	368	76,3%
56-64	23	15	48	4	90	18,7%
65+	3	0	4	1	8	1,7%
total	74	75	297	36	482	100,0%

blood group	Austria	Belgium	Germany	Netherlands	total	%
A	37	35	112	16	200	41,5%
AB	5	0	11	1	17	3,5%
B	6	10	38	3	57	11,8%
O	26	30	136	16	208	43,2%
total	74	75	297	36	482	100,0%

**Outflow from lung waiting list - 2001**

reason	Austria	Belgium	Germany	Netherlands	total
transplanted	59	47	139	27	272

reason	Austria	Belgium	Germany	Netherlands	total
died on the waiting list	2	14	91	16	123

age (years)	Austria	Belgium	Germany	Netherlands	total	%
0-15	0	0	1	1	2	1,6%
16-55	1	11	64	12	88	71,5%
56-64	1	3	23	3	30	24,4%
65+	0	0	3	0	3	2,4%
total	2	14	91	16	123	100,0%

blood group	Austria	Belgium	Germany	Netherlands	total	%
A	1	5	32	5	43	35,0%
AB	0	0	4	3	7	5,7%
B	0	2	8	2	12	9,8%
O	1	7	47	6	61	49,6%
total	2	14	91	16	123	100,0%

**Outflow from lung waiting list - 2001 - delistings**

reason for delisting	Austria	Belgium	Germany	Netherlands	total
better patient / no txp.	0	1	4	8	13
not reported	0	0	1	0	1
other	0	0	0	1	1
poor patient / no txp.	2	1	0	0	3
wrong listing / adm. error	0	1	0	0	1
total	2	3	5	9	19



**Table 4.10 Heart transplants characteristics in 2001**

<b>Cadaveric donor heart transplants</b>							
type of transplant	Austria	Belgium	Germany	Netherlands	Slovenia	total	%
heart only	61	79	389	35	4	568	95,3%
heart + both lungs	2	4	13	2	0	21	3,5%
kidney + heart	1	1	5	0	0	7	1,2%
<b>total</b>	<b>64</b>	<b>84</b>	<b>407</b>	<b>37</b>	<b>4</b>	<b>596</b>	<b>100,0%</b>
<b>Heart only transplant</b>							
HLA - A,B,DR mismatches	Austria	Belgium	Germany	Netherlands	Slovenia	total	%
1	1	0	0	1	0	2	0,4%
2	0	4	13	7	0	24	4,2%
3	2	5	43	11	2	63	11,1%
4	4	10	70	5	2	91	16,0%
5	7	9	66	10	0	92	16,2%
6	2	2	37	0	0	41	7,2%
not calculated	45	49	160	1	0	255	44,9%
<b>total</b>	<b>61</b>	<b>79</b>	<b>389</b>	<b>35</b>	<b>4</b>	<b>568</b>	<b>100,0%</b>
age (years)	Austria	Belgium	Germany	Netherlands	Slovenia	total	%
0-5	0	0	13	0	0	13	2,3%
6-15	4	1	7	1	0	13	2,3%
16-55	23	40	185	25	2	275	48,4%
56-64	26	27	160	9	1	223	39,3%
65+	8	11	24	0	1	44	7,7%
<b>total</b>	<b>61</b>	<b>79</b>	<b>389</b>	<b>35</b>	<b>4</b>	<b>568</b>	<b>100,0%</b>
blood group	Austria	Belgium	Germany	Netherlands	Slovenia	total	%
A	29	40	160	17	1	247	43,5%
AB	4	4	31	1	0	40	7,0%
B	12	4	41	3	0	60	10,6%
O	16	31	157	14	3	221	38,9%
<b>total</b>	<b>61</b>	<b>79</b>	<b>389</b>	<b>35</b>	<b>4</b>	<b>568</b>	<b>100,0%</b>
PRA	Austria	Belgium	Germany	Netherlands	Slovenia	total	%
0-5%	13	34	222	31	1	301	53,0%
6-84%	0	0	13	0	0	13	2,3%
85-100%	0	1	0	0	0	1	0,2%
not reported	48	44	154	4	3	253	44,5%
<b>total</b>	<b>61</b>	<b>79</b>	<b>389</b>	<b>35</b>	<b>4</b>	<b>568</b>	<b>100,0%</b>
wait (months)	Austria	Belgium	Germany	Netherlands	Slovenia	total	%
0-5	42	57	168	15	2	284	50,0%
6-11	16	20	101	16	1	154	27,1%
12-23	1	1	91	3	1	97	17,1%
24-59	2	1	29	1	0	33	5,8%
<b>total</b>	<b>61</b>	<b>79</b>	<b>389</b>	<b>35</b>	<b>4</b>	<b>568</b>	<b>100,0%</b>
sequence	Austria	Belgium	Germany	Netherlands	Slovenia	total	%
first	59	77	383	35	4	558	98,2%
repeat	2	2	6	0	0	10	1,8%
<b>total</b>	<b>61</b>	<b>79</b>	<b>389</b>	<b>35</b>	<b>4</b>	<b>568</b>	<b>100,0%</b>
match - residency	Austria	Belgium	Germany	Netherlands	Slovenia	total	%
no	2	1	1	0	0	4	0,7%
yes	59	78	388	35	4	564	99,3%
<b>total</b>	<b>61</b>	<b>79</b>	<b>389</b>	<b>35</b>	<b>4</b>	<b>568</b>	<b>100,0%</b>

**Table 4.11 Heart + lung transplants 2001 - characteristics**

<b>Heart lung only transplant</b>							
HLA -A,B,DR mismatches	Austria	Belgium	Germany	Netherlands	total	%	
2	0	1	0	0	1	4,8%	
3	0	0	1	0	1	4,8%	
4	0	1	4	1	6	28,6%	
5	0	0	1	1	2	9,5%	
not calculated	2	2	7	0	11	52,4%	
total	2	4	13	2	21	100,0%	
age (years)	Austria	Belgium	Germany	Netherlands	total	%	
0-15	0	2	1	0	3	14,3%	
16-55	2	2	11	2	17	81,0%	
56-64	0	0	1	0	1	4,8%	
total	2	4	13	2	21	100,0%	
blood group	Austria	Belgium	Germany	Netherlands	total	%	
A	2	3	5	1	11	52,4%	
B	0	0	2	0	2	9,5%	
O	0	1	6	1	8	38,1%	
total	2	4	13	2	21	100,0%	
PRA	Austria	Belgium	Germany	Netherlands	total	%	
0-5%	0	2	7	0	9	42,9%	
6-84%	0	0	2	0	2	9,5%	
not reported	2	2	4	2	10	47,6%	
total	2	4	13	2	21	100,0%	
wait (months)	Austria	Belgium	Germany	Netherlands	total	%	
0-5	2	2	6	1	11	52,4%	
6-11	0	2	3	0	5	23,8%	
12-23	0	0	1	1	2	9,5%	
24-59	0	0	3	0	3	14,3%	
total	2	4	13	2	21	100,0%	
sequence	Austria	Belgium	Germany	Netherlands	total	%	
first	2	4	13	2	21	100,0%	
total	2	4	13	2	21	100,0%	
match - residency	Austria	Belgium	Germany	Netherlands	total	%	
no	1	0	0	0	1	4,8%	
yes	1	4	13	2	20	95,2%	
total	2	4	13	2	21	100,0%	

plant (2000: N=50). Fifty percent of recipients (N=284) underwent heart transplantation within six months after registration on the waiting list (2000: 60%).

Twenty-one heart+lung transplants were performed in 2001, one more than in 2000 (Table 4.8 and 4.11). Only three pediatric patients underwent a heart+ lung transplant in 2001 (2000 N=2). Five of the heart+lung recipients waited longer than a year for their heart+lung transplants (Table 4.11).

A total of 247 lung(s)-only transplantations were performed in 2001 (2000:N=256). Germany (-23) performed less lung transplants while Belgium (+5) and the Netherlands (+10) showed increases: an overall decrease of 9 transplants in 2001 (Tables 4.9 and 4.12). The number of children receiving a lung transplant was 7 (2000: N=5). Five transplanted patients were 65 years or older (2000: N=5). With the exception of patients in the Netherlands (28%), about 67.6% or more (Austria (96.5%), Belgium (81%), and Germany (57.7%) of the patients underwent lung transplantation within one year (N=167) (Table 4.12).

Transplant activities and exchange of thoracic donor organs are shown in detail in the Addenda.

#### 4.4.2 Mortality on the waiting list and de-listing

The mortality of patients on the heart transplant waiting list (N=203) was in 2001 10.9% higher than in 2000 (N=183) (Table 4.7). Seventeen neonates and small infants died before receiving a transplant. De-listing from the heart waiting list occurred in 179 cases (2000: 244). A decrease of 26.7%!

Table 4.9 shows that 12 patients, all adults, died in 2001 while awaiting a heart+lung transplant (2000: 4). Three heart + lung patients were delisted from the waiting list.

One hundred and twenty-three patients of which 2 children died while awaiting lung transplantation in 2001 (2000: N=103) (Table 4.9).

**Table 4.12 Lung transplants 2001 - characteristics**

<b>Cadaveric donor lung transplants</b>						
type of transplant	Austria	Belgium	Germany	Netherlands	total	%
single lung	28	14	30	7	79	29,0%
both lungs	29	28	93	18	168	61,8%
heart + both lungs	2	4	13	2	21	7,7%
kidney + both lungs	0	0	1	0	1	0,4%
both lungs + whole liver	0	1	2	0	3	1,1%
<b>total</b>	<b>59</b>	<b>47</b>	<b>139</b>	<b>27</b>	<b>272</b>	<b>100,0%</b>
<b>Lung only transplants</b>						
HLA-A,B,DR mismatches	Austria	Belgium	Germany	Netherlands	total	%
1	0	0	1	0	1	0,4%
2	1	0	4	0	5	2,0%
3	0	3	11	3	17	6,9%
4	3	8	22	7	40	16,2%
5	3	4	17	8	32	13,0%
6	1	4	4	4	13	5,3%
not calculated	49	23	64	3	139	56,3%
<b>total</b>	<b>57</b>	<b>42</b>	<b>123</b>	<b>25</b>	<b>247</b>	<b>100,0%</b>
age (years)	Austria	Belgium	Germany	Netherlands	total	%
0-15	2	2	2	1	7	2,8%
16-55	38	32	89	19	178	72,1%
56-64	15	7	30	5	57	23,1%
65+	2	1	2	0	5	2,0%
<b>total</b>	<b>57</b>	<b>42</b>	<b>123</b>	<b>25</b>	<b>247</b>	<b>100,0%</b>
blood group	Austria	Belgium	Germany	Netherlands	total	%
A	29	18	59	13	119	48,2%
AB	5	1	5	2	13	5,3%
B	4	3	18	2	27	10,9%
O	19	20	41	8	88	35,6%
<b>total</b>	<b>57</b>	<b>42</b>	<b>123</b>	<b>25</b>	<b>247</b>	<b>100,0%</b>
PRA	Austria	Belgium	Germany	Netherlands	total	%
0-5%	41	8	87	0	136	55,1%
6-84%	6	1	4	0	11	4,5%
not reported	10	33	32	25	100	40,5%
<b>total</b>	<b>57</b>	<b>42</b>	<b>123</b>	<b>25</b>	<b>247</b>	<b>100,0%</b>

**Table 4.12 Lung transplants 2001 - characteristics**

**Cadaveric donor lung transplants**

wait (months)	Austria	Belgium	Germany	Netherlands	total	%
0-5	47	23	44	5	119	48,2%
6-11	8	11	27	2	48	19,4%
12-23	1	7	36	8	52	21,1%
24-59	1	1	14	9	25	10,1%
60 +	0	0	2	1	3	1,2%
total	57	42	123	25	247	100,0%

sequence	Austria	Belgium	Germany	Netherlands	total	%
first	47	41	118	25	231	93,5%
repeat	10	1	5	0	16	6,5%
total	57	42	123	25	247	100,0%

match - residency	Austria	Belgium	Germany	Netherlands	total	%
no	10	0	1	0	11	4,5%
yes	47	42	122	25	236	95,5%
total	57	42	123	25	247	100,0%

# 5. Liver: donation, waiting lists and transplants

## 5.1 Liver donors

Table 5.1 shows the fate of livers from the 1420 (2000: N=1446) potential liver donors reported to the central office of Eurotransplant in 2001: 78.5% or 1086 out of 1383 donor livers were accepted (2000: 83%). Most of the donor livers which were not procured (N=297) were rejected for medical reasons (N=246). Sixty-seven procured livers were discarded in 2001 (6.2%) while this was 9.6% in 2000 (N=115 / 1198). The total number of donors whose livers were transplanted decreased: -7.5% (N=1054) as compared with 2000 (N=1139). Seventy livers were divided ('splitted') and transplanted into two recipients. (2000: N=113) a significant drop of 38.1%! Four split livers were not used.

In 2001, nearly the same number of livers were transplanted from donors  $\geq$  56 years (N= 212) (2000: N=208). The number of pediatric donor livers used in a transplant went down with 13.6% (N=66) as compared to 2000 (N=76) (Table 5.2).

**Table 5.1 Cadaveric donor livers in the Eurotransplant region in 2001**

<b>Donors</b>							
donor country	Austria	Belgium	Germany	Luxembourg	Netherlands	Slovenia	total
cadaveric donors	204	245	1094	5	208	28	1784
not liver donors	40	9	234	0	78	3	364
cadaveric liver donors	164	236	860	5	130	25	1420
<b>Donor procedures</b>							
donor country	Austria	Belgium	Germany	Luxembourg	Netherlands	Slovenia	total
whole liver procedure	161	233	833	5	127	24	1383
split liver procedure	3	3	27	0	3	1	37
total	164	236	860	5	130	25	1420
<b>Whole livers</b>							
donor country	Austria	Belgium	Germany	Luxembourg	Netherlands	Slovenia	total
reported	161	233	833	5	127	24	1383
not procured	33	35	201	1	21	6	297
procured	128	198	632	4	106	18	1086
not transplanted	5	9	49	0	3	1	67
transplanted	123	189	583	4	103	17	1019
<b>Split livers</b>							
donor country	Austria	Belgium	Germany	Netherlands	Slovenia	total	
potential split livers	3	3	27	3	1	37	
split liver not used	0	0	4	0	0	4	
split liver transplanted	6	6	50	6	2	70	

**Table 5.2 Demographic data on cadaveric organ donors, whose livers were transplanted in the Eurotransplant region and used for a liver transplant from 1997 to 2001**

age (years)	1997	1998	1999	2000	2001	2000/2001
0-15	75	69	79	74	66	-10,8%
16-55	782	738	738	794	776	-2,3%
56-64	104	124	148	151	139	-7,9%
65+	22	31	63	57	73	28,1%
total	983	962	1028	1076	1054	-2,0%
sex	1997	1998	1999	2000	2001	2000/2001
female	396	389	461	487	466	-4,3%
male	587	573	567	589	588	-0,2%
total	983	962	1028	1076	1054	-2,0%
blood group	1997	1998	1999	2000	2001	2000/2001
A	424	398	433	468	443	-5,3%
AB	46	37	38	45	50	11,1%
B	104	116	111	107	111	3,7%
O	409	411	446	456	450	-1,3%
total	983	962	1028	1076	1054	-2,0%
cause of death	1997	1998	1999	2000	2001	2000/2001
accident	390	345	349	345	368	6,7%
natural	530	573	626	687	640	-6,8%
suicide	63	44	53	44	46	4,5%
total	983	962	1028	1076	1054	-2,0%

**Table 5.3 Active cadaveric liver transplant waiting list as per December 31, 2001 - characteristics**

**Liver only Waiting list**

age (years)	Austria	Belgium	Germany	Netherlands	Slovenia	total	%
0-5	1	3	16	5	0	25	2,4%
6-15	0	7	15	3	0	25	2,4%
16-55	43	50	493	53	3	642	61,6%
56-64	44	28	200	20	1	293	28,1%
65+	10	8	38	1	0	57	5,5%
total	98	96	762	82	4	1042	100,0%
blood group	Austria	Belgium	Germany	Netherlands	Slovenia	total	%
A	36	41	354	29	2	462	44,3%
AB	3	5	25	2	0	35	3,4%
B	20	19	120	12	0	171	16,4%
O	39	31	263	39	2	374	35,9%
total	98	96	762	82	4	1042	100,0%
sequence	Austria	Belgium	Germany	Netherlands	Slovenia	total	%
first	97	93	718	74	4	986	94,6%
repeat	1	3	44	8	0	56	5,4%
total	98	96	762	82	4	1042	100,0%
registration time (months)	Austria	Belgium	Germany	Netherlands	Slovenia	total	%
0-5	78	66	416	58	0	618	59,3%
6-11	16	29	250	22	2	319	30,6%
12-23	2	1	88	1	2	94	9,0%
24+	1	0	8	0	0	9	0,9%
not yet reported	1	0	0	1	0	2	0,2%
total	98	96	762	82	4	1042	100,0%
match - residency	Austria	Belgium	Germany	Netherlands	Slovenia	total	%
no	3	5	7	0	0	15	1,4%
yes	95	91	755	82	4	1027	98,6%
total	98	96	762	82	4	1042	100,0%

## 5.2 Waiting list

The number of patients on the active liver waiting list as per December 31, 2001 increased spectacularly with 36.1% (N=1093) as compared with 2000 (N=803) (Table 5.3; Figure 5.1).

The liver-only waiting list showed the following (Table 5.3):

- Large differences between the ET countries of liver patients per million inhabitants on the waiting list. Slovenia (2.0 pmi) has the lowest number while Austria now has 12.0 pmi! The Netherlands showed an increase from 3.8 pmi in 2000 up to 5.1 pmi in 2001.
- The pediatric liver transplant waiting list size increased from: N=30 in 2000 to N=50 in 2001.
- ABO blood group type O patients decreased again to 35.9% of the total active waiting list (2000: 38%) but in absolute numbers the number increased from N=308 in 2000 to N=374 in 2001.
- Fifty-six patients (5.4%) were awaiting a re-transplant on December 31, 2001.
- Four hundred and twenty-four patients (40.7%) were waiting for six months or more (2001: 29%).

## 5.3 Inflow to the liver waiting list in 2001

Ten percent (N=+187) increase in registrations for a liver transplantation was noted in 2001 (N=2031). (Table 5.4). The number of patients requiring a repeat liver transplant increased with 22.8% in 2001 with N=260 as compared to 2000 (N=206).

Austria and Belgium had the highest inflow of liver patients per million inhabitants, namely, 25.4 pmi and 29.8 pmi. The Netherlands (10.6 pmi) and Slovenia (8.0 pmi) the lowest rates.

Pediatric patients comprised 9.1% of the total inflow in 2001 (N=184)

(2000: N=162), while 31% was accounted by the patients aged 56 years or more (N=631) of which 104 patients were over the age of 65 years (2000: N=86).

The inflow of ABO type O patients amounted to 38.2%, which is 2.3% higher than the current active liver waiting list.

## 5.4 Outflow from the liver waiting list in 2001

### 5.4.1 Liver transplant activities

In 2001, 1112 cadaveric liver transplants were carried out being -4.8% than in 2000 (N=1168) (Table 5.5). In 2001, 1074 liver-only transplants were performed, 50 (-4.5%) less than in 2000 (N=1124).

Other points to note are:

- Split-liver transplants dropped to 6.5% in 2001 (N=72) (2000: N=113) of the total liver transplant activity.
- Fifty-nine pediatric liver recipients transplanted (60.2%) were younger than six years of age (N=59) (2000: 57.1%).
- A slight decrease (-4.7%) of transplanted patients older than 56 years was noted, namely 347 in 2001 versus 364 in 2000. Sixty-four patients of 65 years or older received a liver transplant (2000: N=53).
- Repeat liver transplants constituted 12.8% of the total number of transplants in 2001 (N=137) (2000: N=136 or 11.6%).
- In 2001, 45.7% of recipients (N=491) had to wait longer than 6 months as compared to 32.5% in 2000 (N=380).

Transplant activities and liver exchange by country and by centre are shown in detail in the Addenda.

### 5.4.2 Mortality on the waiting list and de-listing

The number of liver transplant candidates who were removed from the waiting list because they died prior to transplantation amounted to 304 in 2001 (Table 5.4). Seventeen children, died awaiting a liver transplant (2000: N=11). Furthermore, 42.4% (129 / 304) of the patients who died before receiving a liver transplant had blood group A.

In 2001, 140 patients were removed from the waiting list for a variety of reasons. They were either too poor transplant candidates, or they recovered. (2000: N=107).

**Table 5.4 Cadaveric liver waiting list 2001: inflow and outflow**

<b>Inflow on liver waiting list - 2001</b>							
registration type	Austria	Belgium	Germany	Netherlands	Slovenia	total	%
new	194	277	1146	140	14	1771	87,2%
re-reg	14	30	185	29	2	260	12,8%
total	208	307	1331	169	16	2031	100,0%
blood group	Austria	Belgium	Germany	Netherlands	Slovenia	total	%
A	83	132	582	65	6	868	42,7%
AB	10	16	75	9	1	111	5,5%
B	33	40	182	19	2	276	13,6%
O	82	119	492	76	7	776	38,2%
total	208	307	1331	169	16	2031	100,0%
age (years)	Austria	Belgium	Germany	Netherlands	Slovenia	total	%
0-5	2	17	82	20	0	121	6,0%
6-15	4	12	40	7	0	63	3,1%
16-55	104	165	828	106	13	1216	59,9%
56-64	84	79	329	32	3	527	25,9%
65 +	14	34	52	4	0	104	5,1%
total	208	307	1331	169	16	2031	100,0%
<b>Outflow from liver waiting list - 2001</b>							
reason	Austria	Belgium	Germany	Netherlands	Slovenia	total	
transplanted	126	205	662	110	9	1112	
reason	Austria	Belgium	Germany	Netherlands	Slovenia	total	
died on the waiting list	32	39	214	16	3	304	
age (years)	Austria	Belgium	Germany	Netherlands	Slovenia	total	%
0-5	0	1	8	2	0	11	3,6%
6-15	2	1	2	1	0	6	2,0%
16-55	14	21	123	9	3	170	55,9%
56-64	13	11	71	4	0	99	32,6%
65 +	3	5	10	0	0	18	5,9%
total	32	39	214	16	3	304	100,0%
blood group	Austria	Belgium	Germany	Netherlands	Slovenia	total	%
A	14	12	94	7	2	129	42,4%
AB	4	0	9	0	0	13	4,3%
B	2	7	33	4	1	47	15,5%
O	12	20	78	5	0	115	37,8%
total	32	39	214	16	3	304	100,0%
<b>Outflow from liver waiting list - 2001 - delistings</b>							
reason for delisting	Austria	Belgium	Germany	Netherlands	Slovenia	total	
better patient / no txp.	4	8	33	3	0	48	
not reported	0	0	16	0	0	16	
other	2	2	22	6	0	32	
poor patient / no txp.	2	3	32	4	1	42	
wrong Listing / adm. error	2	0	0	0	0	2	
total	10	13	103	13	1	140	



**Table 5.5 Liver transplants 2001 - characteristics**

<b>Cadaveric donor liver transplants</b>							
type of transplant	Austria	Belgium	Germany	Netherlands	Slovenia	total	%
split liver	3	2	64	3	0	72	6,5%
whole liver	120	195	573	105	9	1002	90,1%
kidney + split liver	0	1	2	0	0	3	0,3%
kidney + whole liver	2	6	19	2	0	29	2,6%
both lungs + whole liver	0	1	2	0	0	3	0,3%
pancreas + whole liver	1	0	2	0	0	3	0,3%
<b>total</b>	<b>126</b>	<b>205</b>	<b>662</b>	<b>110</b>	<b>9</b>	<b>1112</b>	<b>100,0%</b>
<b>Liver only transplant</b>							
HLA - A, B, DR mismatches	Austria	Belgium	Germany	Netherlands	Slovenia	total	%
1	0	0	5	3	0	8	0,7%
2	0	0	11	6	0	17	1,6%
3	0	6	28	8	0	42	3,9%
4	3	19	68	11	0	101	9,4%
5	1	19	80	17	0	117	10,9%
6	0	13	31	10	0	54	5,0%
not calculated	119	140	414	53	9	735	68,4%
<b>total</b>	<b>123</b>	<b>197</b>	<b>637</b>	<b>108</b>	<b>9</b>	<b>1074</b>	<b>100,0%</b>
age (years)	Austria	Belgium	Germany	Netherlands	Slovenia	total	%
0-5	1	8	41	9	0	59	5,5%
6-15	1	10	24	4	0	39	3,6%
16-55	62	100	382	77	8	629	58,6%
56-64	51	52	164	15	1	283	26,4%
65+	8	27	26	3	0	64	6,0%
<b>total</b>	<b>123</b>	<b>197</b>	<b>637</b>	<b>108</b>	<b>9</b>	<b>1074</b>	<b>100,0%</b>
blood group	Austria	Belgium	Germany	Netherlands	Slovenia	total	%
A	53	87	259	42	4	445	41,4%
AB	6	11	49	6	1	73	6,8%
B	19	16	84	13	0	132	12,3%
O	45	83	245	47	4	424	39,5%
<b>total</b>	<b>123</b>	<b>197</b>	<b>637</b>	<b>108</b>	<b>9</b>	<b>1074</b>	<b>100,0%</b>
PRA	Austria	Belgium	Germany	Netherlands	Slovenia	total	%
0-5%	1	23	199	29	0	252	23,5%
6-84%	2	2	12	3	0	19	1,8%
85-100%	0	1	4	0	0	5	0,5%
not reported	120	171	422	76	9	798	74,3%
<b>total</b>	<b>123</b>	<b>197</b>	<b>637</b>	<b>108</b>	<b>9</b>	<b>1074</b>	<b>100,0%</b>
wait (months)	Austria	Belgium	Germany	Netherlands	Slovenia	total	%
0-5	100	140	282	54	7	583	54,3%
6-11	18	53	253	51	2	377	35,1%
12-23	4	4	92	3	0	103	9,6%
24-59	1	0	10	0	0	11	1,0%
<b>total</b>	<b>123</b>	<b>197</b>	<b>637</b>	<b>108</b>	<b>9</b>	<b>1074</b>	<b>100,0%</b>
sequence	Austria	Belgium	Germany	Netherlands	Slovenia	total	%
first	116	177	542	94	8	937	87,2%
repeat	7	20	95	14	1	137	12,8%
<b>total</b>	<b>123</b>	<b>197</b>	<b>637</b>	<b>108</b>	<b>9</b>	<b>1074</b>	<b>100,0%</b>
match- residency	Austria	Belgium	Germany	Netherlands	Slovenia	total	%
no	1	9	7	0	0	17	1,6%
yes	121	188	629	108	9	1055	98,2%
unknown	1	0	1	0	0	2	0,2%
<b>total</b>	<b>123</b>	<b>197</b>	<b>637</b>	<b>108</b>	<b>9</b>	<b>1074</b>	<b>100,0%</b>

## 5.5 Living donor liver transplants

The number of living donor liver transplants performed in 2001 rose with 6.9% to N=124 (2000: N=116). The vast majority (76.6%) were between genetically related individuals (95 /124) (See table 5.6 and table 3b in the Addenda). The most active programmes of living-related liver transplantation were Essen (N=23), Berlin (N=21), Hannover (N=20) Brussels (LA) (N=12), and Gent (N=15). Six domino liver transplants were performed in 2001 using the native liver of a patient who underwent a liver transplant due to familial amyloid neuropathy. Twenty-nine living unrelated liver transplants were carried out in 2001 (2000: N=22). Most of these were performed in Berlin (N=6) and Göttingen (N=6).

Nearly twice as many mothers (N=24) donated liver segments to their children as compared to fathers (N=14) (Table 5.6). Most of the so-called living unrelated liver transplants were performed between spouses (N=20). In 2001, the majority of patients who received a living donor transplant was not younger than sixteen years of age anymore (N=30). In 2001, 60 patients between 16-55 years and 34 patients > 56 years of age received a living liver transplant (2000: resp. 42 and 37). Even 6 patients over the age of 65 years received a living liver transplant. Interesting to note, that in the Netherlands 2 livers were successfully transplanted from Non-heart beating donors.

## 5.6 Intestine transplants

On January 1, 2001, 3 patients were on the waiting list for an intestinal transplant. (2 in Germany (centre BC) and 1 in the Netherlands (centre GR)). During the year 2001, 17 patients were registered for either an intestinal transplant (N=10) or for a combined intestinal transplant (N=7). As per December 31, 2001, 10 patients were awaiting either an isolated intestinal transplant (N=4) or in combination with another organ. (N=6). In 2001, 8 intestinal transplants were performed. (BC:6; GR:1; IB:1). Of these, 5 intestines were obtained through sharing, thus not from local donors. One patient died while awaiting a transplant.

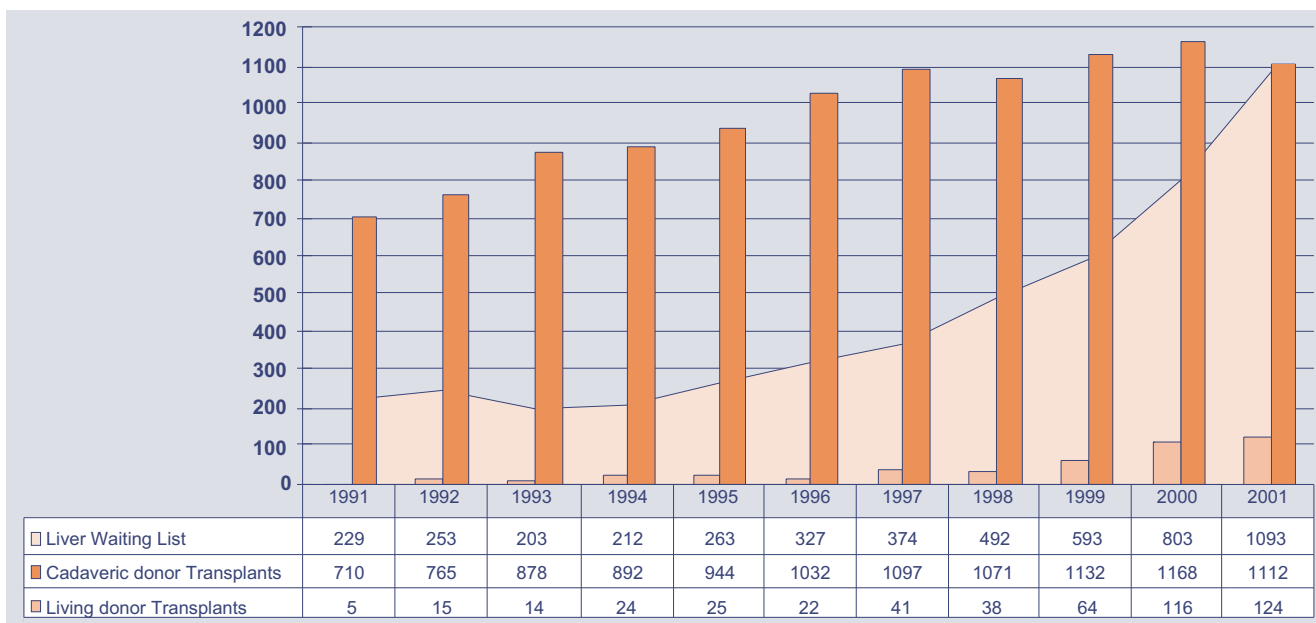


Figure 5.1. Dynamics of the Eurotransplant liver waiting list and liver transplants between 1991 and 2001

**Table 5.6 Living donor liver transplants - liver only 2001**

Liver only	Austria	Belgium	Germany	total	%
related	2	25	68	95	76,6%
non Related	0	2	27	29	23,4%
total	2	27	95	124	100,0%

Related	Austria	Belgium	Germany	total	%
father	0	3	11	14	14,7%
mother	1	8	15	24	25,3%
other family	0	13	27	40	42,1%
sibling	1	1	15	17	17,9%
total	2	25	68	95	100,0%

Non related	Belgium	Germany	total	%
other	1	8	9	31,0%
spouse	1	19	20	69,0%
total	2	27	29	100,0%

recipient age (years)	Austria	Belgium	Germany	total	%
0-5	0	7	19	26	21,0%
6-15	1	2	1	4	3,2%
16-55	1	11	48	60	48,4%
56-64	0	6	22	28	22,6%
65+	0	1	5	6	4,8%
total	2	27	95	124	100,0%

sequence	Austria	Belgium	Germany	total	%
first	2	26	92	120	96,8%
repeat	0	1	3	4	3,2%
total	2	27	95	124	100,0%



# 6. Pancreas: donation, waiting lists, and transplants

## 6.1 Pancreas donors

In 2001, 890 pancreas donors were reported to the central office of Eurotransplant (Table 6.1). (2000: N=835) Nearly 36% (319/890) of the reported pancreata were not procured, primarily (88.1%, N=281) due to medical reasons. Of the remaining 571 pancreata, 313 were used for clinical transplantations either as a whole pancreas transplantation (N=311) or direct for an islets transplantation (N=2). Table 6.1 also shows that 258 pancreata were procured but not used. However, 201 were sent directly or indirectly to research programs also involved in clinical islets transplantation. Direct allocation means directly offered for clinical islets transplantation. Indirect allocation means that the pancreas, for whatever reason, could not be allocated to a patient awaiting a whole pancreas transplant and was thereafter sent to one of the clinical islets transplantation centers.

Table 6.2 presents demographic data of donors of which the pancreas was used for clinical pancreas transplantation. The majority of the donors (90.7%) is aged between 16-55 years (N=284) as to be expected.

**Table 6.1 Cadaveric donor pancreas in the Eurotransplant region in 2001**

<b>Donors</b>							
donor country	Austria	Belgium	Germany	Luxembourg	Netherlands	Slovenia	total
cadaveric donors	204	245	1094	5	208	28	1784
not pancreas donors	126	91	557		111	9	894
cadaveric pancreas donors	78	154	537	5	97	19	890

<b>Pancreas</b>							
donor country	Austria	Belgium	Germany	Luxembourg	Netherlands	Slovenia	total
reported	78	154	537	5	97	19	890
not procured	37	36	205	1	28	12	319
procured	41	118	332	4	69	7	571
not transplanted	14	62	142	0	36	4	258
transplanted	27	56	190	4	33	3	313

## 6.2 Waiting list

The overall number of patients on the active waiting list for a pancreas transplant decreased by 21.8% (N=226) compared with 2000 (N=289); the pancreas (/kidney) waiting list decreased with 51 patients (N=144). In 2001, also an unexpected decline of the waiting list for a pancreas-only transplant was observed, namely, 70 patients in 2001 versus 87 in 2000 (Table 6.3a). As per December 31, 2001, 43 patients were awaiting islets or  $\beta$ -cell transplants (2000: N=36).

The characteristics of the total pancreas+kidney waiting list as per December 31, 2001 (N=144) are shown in Table 6.3a:

- A high number of ABO blood group type O patients was present (N=82 i.e. 56.9%). The number of blood group B patients dropped to 12 in 2001 (2000: N=15) while the number of blood group A patients even decreased from 65 in 2000 to 43 in 2001.
- Eleven patients had a current panel reactive antibody (PRA) level of 6% or more, of which 2 had even more than 85% PRA.
- Waiting times of one year or more were noted for 21.5% of all ET patients (31 /144). In 2000 this was 19.5% (38 / 195).

**Table 6.2 Demographic data on cadaveric donors, whose pancreata were transplanted in the Eurotransplant region**

age (years)	1997	1998	1999	2000	2001	2001-2000
0-15	20	12	23	25	23	-8,0%
16-55	204	238	283	307	284	-7,5%
56-64	2	6	4	2	6	200,0%
total	226	256	310	334	313	-6,3%
sex	1997	1998	1999	2000	2001	2001-2000
female	81	110	136	160	154	-3,8%
male	145	146	174	174	159	-8,6%
total	226	256	310	334	313	-6,3%
blood group	1997	1998	1999	2000	2001	2001-2000
A	108	110	130	144	134	-6,9%
AB	6	9	12	12	10	-16,7%
B	33	25	29	28	26	-7,1%
O	79	112	139	150	143	-4,7%
total	226	256	310	334	313	-6,3%
cause of death	1997	1998	1999	2000	2001	2001-2000
accident	111	110	136	139	147	5,8%
natural	100	135	157	177	152	-14,1%
suicide	15	11	17	18	14	-22,2%
total	226	256	310	334	313	-6,3%

**Table 6.3a Active cadaveric pancreas+kidney transplant waiting list as per December 31, 2001 - characteristics**

Pancreas+kidney only waiting list							
age (years)	Austria	Belgium	Germany	Netherlands	total	%	
16-55	13	18	96	9	136	94,4%	
56-64	0	3	5	0	8	5,6%	
total	13	21	101	9	144	100,0%	
blood group	Austria	Belgium	Germany	Netherlands	total	%	
A	2	4	32	5	43	29,9%	
AB	0	0	7	0	7	4,9%	
B	2	3	4	3	12	8,3%	
O	9	14	58	1	82	56,9%	
total	13	21	101	9	144	100,0%	
% PRA current	Austria	Belgium	Germany	Netherlands	total	%	
0-5 %	11	19	92	7	129	89,6%	
6-84%	2	1	4	2	9	6,3%	
85-100%	0	0	2	0	2	1,4%	
not yet reported	0	1	3	0	4	2,8%	
total	13	21	101	9	144	100,0%	
sequence	Austria	Belgium	Germany	Netherlands	total	%	
first	11	21	96	9	137	95,1%	
repeat	2	0	5	0	7	4,9%	
total	13	21	101	9	144	100,0%	
registration time (months)	Austria	Belgium	Germany	Netherlands	total	%	
0-5	6	15	55	1	77	53,5%	
6-11	3	2	28	3	36	25,0%	
12-23	3	3	18	4	28	19,4%	
24+	1	1	0	1	3	2,1%	
total	13	21	101	9	144	100,0%	
match - residency	Austria	Belgium	Germany	Netherlands	total	%	
no	1	0	0	0	1	0,7%	
yes	12	21	101	9	143	99,3%	
total	13	21	101	9	144	100,0%	

**Table 6.3b Active cadaveric pancreas transplant waiting list as per December 31, 2001 - characteristics**

<b>Pancreas only waiting list</b>					
age (years)	Austria	Belgium	Germany	total	%
16-55	15	18	34	67	95,7%
56-64	2	0	1	3	4,3%
total	17	18	35	70	100,0%
blood group	Austria	Belgium	Germany	total	%
A	7	3	16	26	37,1%
AB	0	0	1	1	1,4%
B	1	2	3	6	8,6%
O	9	13	15	37	52,9%
total	17	18	35	70	100,0%
sequence	Austria	Belgium	Germany	total	%
first	6	15	20	41	58,6%
repeat	11	3	15	29	41,4%
total	17	18	35	70	100,0%
Registration time (months)	Austria	Belgium	Germany	total	%
0-5	4	7	9	20	28,6%
6-11	2	3	2	7	10,0%
12-23	4	5	6	15	21,4%
24+	7	3	18	28	40,0%
total	17	18	35	70	100,0%
match - residency	Austria	Belgium	Germany	total	%
no	1	0	0	1	1,4%
yes	16	18	35	69	98,6%
total	17	18	35	70	100,0%

The characteristics of the pancreas-only waiting list as per December 31, 2001 are given in table 6.3b.

- Also here a high number of blood group O patients (N=37 i.e. 52.9%)
- Twenty-nine patients (41.4%) were registered for a repeat transplant
- Forty-three (61.4%) patients were waiting more than 1 year.

### 6.3 Inflow to the pancreas waiting list during 2001

The number of registrations for a pancreas transplant in 2001 was 16.6% lower (N=361) than in 2000 (N=433) (Table 6.4).

The vast majority of registrations remained for pancreas+kidney transplants namely N=355) (82%), exactly equal to the 2000 situation. Interesting to note is the registration of 45 patients for a pancreas-only transplant in 2001 (2000: N=50), the majority in Germany, namely 32 patients. Surprisingly, in 2001 16 patients were reported for a combined liver+pancreas (2000: N=3). Eleven patients were considered for an islet-only transplant (2000: N=7). More than ten percent (10.2%) pancreas patients (N=37) were registered for a re-transplant.

### 6.4 Outflow from the pancreas waiting list in 2001

#### 6.4.1 Pancreas transplant activities

Since 1995, 2001 was the first year which showed a drop (-10.6%) in the number of pancreas+kidney transplants namely, from 303 transplants in 2000 to 271 in 2001 (Table 6.5a, figure 6.1). Pancreas-only (N=37) and pancreas+liver (N=3) transplants constituted approximately 13% of the total pancreas transplant activity. In 2001, also two patients received a combined liver + pancreas + kidney transplantation.

**Table 6.4 Cadaveric pancreas waiting list 2001: inflow and outflow**

<b>Inflow on pancreas waiting list - 2001</b>						
registration type	Austria	Belgium	Germany	Netherlands	total	%
new	29	49	224	22	324	89,8%
re-reg	4	11	22	0	37	10,2%
total	33	60	246	22	361	100,0%
age (years)	Austria	Belgium	Germany	Netherlands	total	%
16-55	33	56	229	21	339	93,9%
56-64	0	4	15	1	20	5,5%
65+	0	0	2	0	2	0,6%
total	33	60	246	22	361	100,0%
blood group	Austria	Belgium	Germany	Netherlands	total	%
A	13	26	100	8	147	40,7%
AB	3	3	21	0	27	7,5%
B	2	5	27	3	37	10,2%
O	15	26	97	9	147	40,7%
not reported	0	0	1	2	3	0,8%
total	33	60	246	22	361	100,0%
<b>Outflow from pancreas waiting list - 2001</b>						
reason	Austria	Belgium	Germany	Netherlands	total	
transplanted	28	38	221	24	311	
reason	Austria	Belgium	Germany	Netherlands	total	
died on the waiting list	2	3	23	2	30	
age	Austria	Belgium	Germany	Netherlands	total	%
16-55	2	3	20	2	27	90,0%
56-64	0	0	2	0	2	6,7%
65+	0	0	1	0	1	3,3%
total	2	3	23	2	30	100,0%
blood group	Austria	Belgium	Germany	Netherlands	total	%
A	0	2	4	1	7	23,3%
B	2	0	3	0	5	16,7%
O	0	1	16	1	18	60,0%
total	2	3	23	2	30	100,0%
<b>Outflow from pancreas waiting list - 2001 - delistings</b>						
reason for delisting	Austria	Belgium	Germany	Netherlands	total	
better patient / no txp.	1	1	0	0	2	
not reported	0	0	7	0	7	
other	0	8	40	3	51	
poor patient / no txp.	2	3	4	2	11	
wrong listing / adm. error	0	0	1	0	1	
total	3	12	52	5	72	



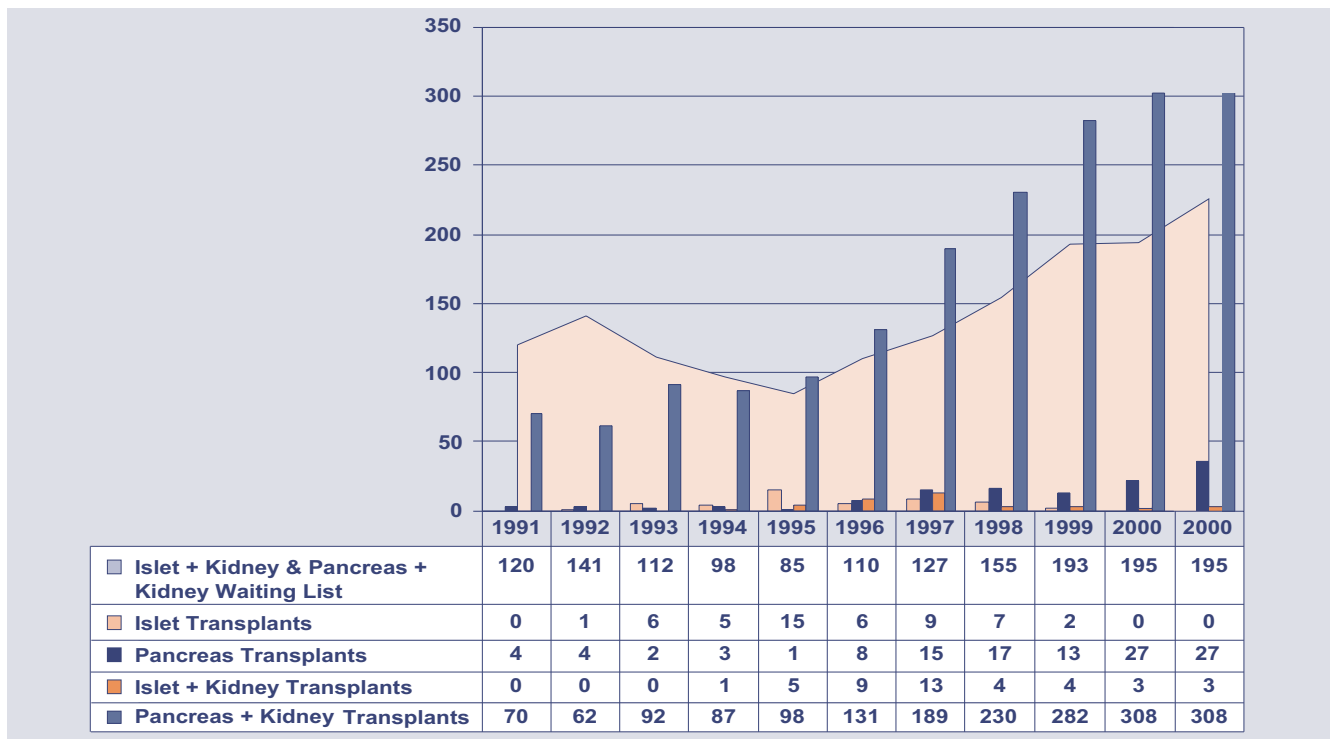


Figure 6.1. Dynamics of the Eurotransplant pancreas+kidney and islet+kidney waiting list, pancreas+kidney, islet+kidney, pancreas and islet-only transplants between 1992 and 2000

Table 6.5a shows the characteristics of the pancreas+kidney transplants carried out in 2001 (N=271), and the following points can be noted:

- Nine transplanted patients (3.3%) belong to the category of immunized patients (PRA > 6%).
- Eighty patients (29.6%) had accumulated a waiting time of 1 year or more.
- Good HLA-A, B, DR matches happened only occasionally. Only 7 combinations with 0 or 1 HLA-A, B, DR mismatch.
- Eleven patients received in 2001 a retransplant.

Table 6.5b shows the characteristics of the pancreas-only transplants in 2001:

- Twenty-five patients (67.6%) received a retransplant.
- Nine patients (24.3%) had to wait more than 1 year for their transplant.
- Belgium and Germany performed an equal number of pancreas-only transplants namely N=15.

In 2001, 24 islets transplants were performed in 17 patients. Innsbruck performed 3 islets transplants into 3 different recipients while Giessen did 9 in 7 patients and Brussels-Jette 12 in 7 patients. For all these clinical islets transplants 48 donors were used.

#### 6.4.2 Mortality on the waiting list and de-listing

Thirty patients died on the pancreas waiting list in 2001 (2000: N=32) (Table 6.4), practically all dying within the first year after registration. Seventy-two patients were removed from the list when they failed to meet the pancreas(+kidney) transplant criteria or they were no longer eligible for a pancreas transplant but were still eligible for a kidney transplant (2000: N=39).

**Table 6.5a Pancreas-Kidney transplants in 2001 - characteristics**

**Pancreas-Kidney only transplant**

HLA - A, B, DR mismatches	Austria	Belgium	Germany	Netherlands	total	%
0	0	0	1	0	1	0,4%
1	0	1	4	1	6	2,2%
2	0	2	25	1	28	10,3%
3	6	4	41	4	55	20,3%
4	6	8	51	9	74	27,3%
5	5	6	52	5	68	25,1%
6	2	1	29	3	35	12,9%
not calculated	2	1	1	0	4	1,5%
<b>total</b>	<b>21</b>	<b>23</b>	<b>204</b>	<b>23</b>	<b>271</b>	<b>100,0%</b>
age (years)	Austria	Belgium	Germany	Netherlands	total	%
16-55	20	23	191	20	254	93,7%
56-64	1		13	3	17	6,3%
<b>total</b>	<b>21</b>	<b>23</b>	<b>204</b>	<b>23</b>	<b>271</b>	<b>100,0%</b>
blood group	Austria	Belgium	Germany	Netherlands	total	%
A	10	14	81	11	116	42,8%
AB	1	1	7	0	9	3,3%
B	2	0	23	3	28	10,3%
O	8	8	93	9	118	43,5%
<b>total</b>	<b>21</b>	<b>23</b>	<b>204</b>	<b>23</b>	<b>271</b>	<b>100,0%</b>
PRA	Austria	Belgium	Germany	Netherlands	total	%
0-5%	19	22	199	22	262	96,7%
6-84%	2	1	5	1	9	3,3%
<b>total</b>	<b>21</b>	<b>23</b>	<b>204</b>	<b>23</b>	<b>271</b>	<b>100,0%</b>
wait (months)	Austria	Belgium	Germany	Netherlands	total	%
0-5	13	13	77	2	105	38,7%
6-11	7	7	61	11	86	31,7%
12-23	1	2	59	10	72	26,6%
24-59	0	1	7	0	8	3,0%
<b>total</b>	<b>21</b>	<b>23</b>	<b>204</b>	<b>23</b>	<b>271</b>	<b>100,0%</b>
sequence	Austria	Belgium	Germany	Netherlands	total	%
first	21	22	198	23	264	97,4%
repeat	0	1	6	0	7	2,6%
<b>total</b>	<b>21</b>	<b>23</b>	<b>204</b>	<b>23</b>	<b>271</b>	<b>100,0%</b>
match - residency	Austria	Belgium	Germany	Netherlands	total	%
yes	21	23	204	23	271	100,0%
<b>total</b>	<b>21</b>	<b>23</b>	<b>204</b>	<b>23</b>	<b>271</b>	<b>100,0%</b>

**Table 6.5b Pancreas transplants characteristics 2001**

<b>Pancreas only transplant</b>						
HLA - A, B, DR mismatches	Austria	Belgium	Germany	Netherlands	total	%
2	2	0	1	0	3	8,1%
3	0	0	4	0	4	10,8%
4	2	1	4	1	8	21,6%
5	2	1	6	0	9	24,3%
6	0	2	0	0	2	5,4%
not calculated	0	11	0	0	11	29,7%
total	6	15	15	1	37	100,0%
age (years)	Austria	Belgium	Germany	Netherlands	total	%
16-55	5	13	15	1	34	91,9%
56-64	0	2	0	0	2	5,4%
65+	1	0	0	0	1	2,7%
total	6	15	15	1	37	100,0%
blood group	Austria	Belgium	Germany	Netherlands	total	%
A	2	11	5	1	19	51,4%
AB	2	1	3	0	6	16,2%
B	0	0	2	0	2	5,4%
O	2	3	5	0	10	27,0%
total	6	15	15	1	37	100,0%
PRA	Austria	Belgium	Germany	Netherlands	total	%
0-5%	6	14	14	1	35	94,6%
6-84%	0	1	0	0	1	2,7%
not reported	0	0	1	0	1	2,7%
total	6	15	15	1	37	100,0%
wait (months)	Austria	Belgium	Germany	Netherlands	total	%
0-5	2	12	8	0	22	59,5%
6-11	1	2	3	0	6	16,2%
12-23	3	1	1	1	6	16,2%
24-59	0	0	3	0	3	8,1%
total	6	15	15	1	37	100,0%
sequence	Austria	Belgium	Germany	Netherlands	total	%
first	1	7	3	1	12	32,4%
repeat	5	8	12	0	25	67,6%
total	6	15	15	1	37	100,0%
match-residency	Austria	Belgium	Germany	Netherlands	total	%
unknown	0	3	0	0	3	8,1%
yes	6	12	15	1	34	91,9%
total	6	15	15	1	37	100,0%



# 7. Histocompatibility Testing

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## 7.1 Introduction

The ongoing task of the Eurotransplant Reference Laboratory (ETRL) is the improvement and maintenance of the high quality of HLA typing, screening for transplantation relevant antibodies, and crossmatching within Eurotransplant and its affiliated centers. This task is addressed by organising Proficiency testing schemes (External Proficiency Testing Exercises) for the Tissue Typing Centers (TTC) collaborating with Eurotransplant (ET). Furthermore, the ETRL initiates studies, as the use of flow cytometry crossmatches, and the relevance of MHC class II antibodies for renal transplantation, and promotes discussions for possible new recommendations with the help of the Tissue Typing Advisory Committee (TTAC). In addition, in the past 16 years the ETRL has addressed the problem of highly sensitised patients, by organising and promoting both the Acceptable Mismatch (AM) and the Highly Immunised Tray/Trial (HIT) programs. Furthermore, visits to the affiliated TTC belong to its duties. A 24 hours a day, 7 days a week duty for all transplantation relevant immunological aspects for all patients within ET rounds up the tasks of the ETRL.

## 7.2 Eurotransplant External Proficiency Testing Schemes

The External Proficiency Testing Schemes applied in 2001 to determine the individual performance of the TTC's are reported below:

### 7.2.1 External Proficiency Testing on HLA typing

In 2001, The ETRL was confronted with a change in the postal system in the participating countries. Material usually sent via express mail took too long to reach the participants so that reliable serological typing and cross-matching was not possible anymore. This pushed the ETRL to decide to supply the participants with the needed samples via overnight courier. Furthermore, the foot and mouth disease made one of the shipments impossible. Therefore, 14 cell suspensions were sent out to the TTC. Each participant received seven samples for typing and was asked to report the results before a certain deadline. For the analysis of the results a 75 % consensus rule was used. This rule has been introduced by the European Federation for Immunogenetics (EFI) and facilitated the acceptance of possible discrepancies. A consensus was obtained for all HLA-A, B and DR antigens (specificities). The results based on the report of the split HLA specificities are summarised in Table 7.1.

**Table 7.1: External Proficiency Testing Exercises on HLA typing**

	Total typings	Discrepant (N)	%Discrepancy
HLA-A, B	399	3	0.75
HLA-DR	390	2	0.51
HLA-A,B,DR	388	4	1.03

Since the majority of the laboratories perform in addition to the serological typing also a molecular typing of the same sample, it is clear that the introduction of molecular typing for HLA-A,B and for HLA-DR has resulted in an increase of reliability of the typing results within Eurotransplant. No differentiation will be made between serological and molecular typing any longer.

### 7.2.2 External Proficiency Testing Exercises on molecular typing

For the External Proficiency Testing on molecular typing two sets of 10 DNA samples each (DNA#17 and DNA#18) were sent to the participants. The DNA was isolated from spleen cells of organ donors, peripheral blood cells from healthy blood donors, or cell lines. Rare alleles and haplotypes were included. The participants could report results on MHC class I and class II typing on the two or four digit resolution level. Tables 7.2 and 7.3 depict the number, type, and discrepancy of the results received:

**Table 7.2: Report of molecular typing results**

MHC	Locus	Participant (N)	Typings (N)	
			2d*	4d*
Class I	HLA-A	51	752	149
	HLA-B	51	730	172
	HLA-C	51	674	112
Class II	HLA-DRB1	59	360	780
	HLA-DRB3,4,5	59	459	623
	HLA-DQB1	59	354	745

\* = Resolution level of 2 digits (2d) e.g. HLA-A\*02 or 4 digits (4d) e.g. HLA-A\*0201

**Table 7.3: Total number of discrepant typings**

MHC		2 d	4 d
Class I	HLA-A,B	15*	14
Class II	HLA-DRB1	1	6
HLA-DQB1		0	8

\* Erroneous use of nomenclature included

The majority of the participants report for the HLA-A,B specificities a 2 digit typing result. The number of discrepancies is still too high, predominantly due to erroneous use of the nomenclature, which could be attributed to a few centers. The situation is different for the specificities of the DRB1 and DQB1 loci. Here, the participants usually report results on the 4-digit resolution level and the number of discrepancies is low. Singular discrepancies can be attributed to clerical errors.

Comparing these results with the previous years show that molecular typing, also for HLA-A,B is feasible and reach the level of acceptance. This was due to several changes, which occurred in the past year. In most TTC the typing for HLA-A,B and HLA-DR occurs now in the same location, reducing possible mixed ups and clerical errors, leading to discrepant results.

### 7.2.3 External Proficiency Testing on Crossmatching

As in the past, TTC participating in this Proficiency Testing Exercise were asked to perform crossmatches using the cells provided for the Proficiency Testing Exercise on serological typing and the sera of four different Eurotransplant patients selected by the ETRL. The TTC used the local crossmatch techniques to simulate the day-to-day practice. In total 28 sera had to be crossmatched per TTC. For the final analysis 849 crossmatches without dithiothreitol (DTT) and 792 crossmatches with DTT were evaluated (Table 7.4). The results are affected by the quality of the cells used.

**Table 7.4: External Proficiency Testing Exercise on crossmatching**

	Comparison between the periods 2001, 2000, and 1999 with respect to the concordance in the report of the different TTC					
	w/o- DTT*			+ DTT		
	2001	2000	1999	2001	2000	1999
All TTC agreed	12	19	20	19	27	22
One TTC disagreed	9	7	14	9	9	14
Two TTC's disagreed	9	11	9	3	6	8
>2 TTC's disagreed	15	27	21	13	22	20

\* DTT (dithiothreitol) destroys antibodies of the IgM type

The results of the Exercise for the period 2000 – 2002 do not differ significantly from the ones of the previous years.

## 7.2.4 External Proficiency Testing Exercise on Screening

The scheme of the External Proficiency Testing Exercises on screening consists of a send out of 4 serum samples from multiparous women 4 times per year. The HLA typing of the serum donor, the immunising partner and of one of the children is known in almost all instances. Three different controls were included: positive and negative controls and the so-called IgM control, a serum containing a paraprotein which reacts positively with all lymphocytes in the standard complement dependent cytotoxicity assay (CDC). The participants were asked to screen the sera according to their usual routine technique and report the test used, the % panel reactive antibodies calculated using the standard test and a test with dithiothreitol (DTT). Furthermore, the participants were asked to report the HLA specificities defined. The ETRL received results from 61 participants. All but two (flow cytometry) performed CDC as their routine screening procedure. In addition, some laboratories (in average 4) performed ELISA based tests in parallel to the CDC. A discrepancy was counted if a participants reported a HLA specificity expressed by the serum donor, or report specificities in the negative and the IgM control or finally if a participant reported negative results for the positive control. In case a participant did not report any specificity or term results as "poly or multispecific, the data were quoted as if no specificity reported. The results can be summarised as follows: the average panel size used by the TTC was 62 HLA typed cells with a range of 15 – 141. The majority of the participants (N=43) performed the screening using DTT. In average 3 TTC per serum reported a discrepant result (rate = 4.9%) and 13 TTC per serum reported "no specificity" (rate = 21.3%). The later number fluctuates depending on the complexity of the serum tested. The %PRA value remains an unreliable parameter since more than a 50% difference between lower and upper range was observed for all sera tested, with exception of the negative control (range = 16%!). Among all participants 25 had no discrepancy and 22 one discrepancy, while 3 participants reported three discrepancies, the maximum of discrepancies observed per individual participant. The results obtained are in line with previous observations. Presumably with the use of new commercially available and standardised techniques the reliability of the antibody screening will increase. The screening for HLA specific antibodies in this period was better than in the previous years. The participants are more confident in reporting specificities, and in the majority of the cases these reports are correct. The most intriguing finding was that the definition of the % PRA value differs significantly from participant to participant. This result points once again to the fact that the % PRA value is not a valuable parameter for allocation procedures. This point has to be discussed in depth within the Eurotransplant community.

## 7.3 Programmes for the highly sensitised patients in Eurotransplant

In the period 2000 – 2001 two programs were available for highly sensitised patients: the Acceptable Mismatch Programme (AM) and the Highly Immunised Tray/Trial (HIT). Both programmes were organised and controlled by the ETRL. They are open for all patients of Eurotransplant. Information for participation can be obtained from the ETRL or the Eurotransplant Administration. The exact numbers of patients transplanted in each program are presented elsewhere in this Annual Report.

## 7.4 Eurotransplant Serum Sets

The era of the send out of serum sets ended in the year 2001, because of the wide introduction of molecular techniques. We take here the opportunity to thank all co-operating HLA laboratories within and outside Eurotransplant for making valuable typing sera available to the ETRL and the Eurotransplant community.

## 7.5 Other activities

### *The Eighth Extra Mural Meeting*

The eighth Extra Mural Meeting was held in Amsterdam, The Netherlands, on February 23, 2001. Topic of this meeting was the relevance of HLA specific antibodies in transplantation. The participants were informed about the newest aspects of screening and the use of the HLAMatchmaker algorithm. Also the relevance of ELISA based antibody screening and different ways of crossmatching were discussed.

### *Annual Tissue Typers Meeting*

The Annual Tissue Typers Meeting was held in September 27, 2001 in Leiden. Over one hundred participants from the different TTC were present. The major topic was the relevance of HLA antibodies in especially kidney transplantation. In addition, the management of highly sensitized patients was discussed including the results of the different programs of Eurotransplant. Besides the report on a flow cytometry standardization study also the relevance of historical donor specific antibodies was discussed.

### **7.5.1 Tissue Typing Advisory Committee (TTAC)**

The minutes of the meetings of the TTAC have been published in the ET Newsletter. It should be noted that the TTAC makes both the agenda and a summary of the minutes available to all TTC. All centers have therefore the opportunity to react on the different discussion points. Throughout 2001 the TTAC discussed the reorganization of the donor typing in Germany, the need of crossmatches at the donor center for acceptable mismatch patients, the discontinuation of the HIT program, and a study on the influence of MHC class II antibodies in renal transplantation. In addition, the possible use of the HLAMatchmaker algorithm by the different TTC for antibody definition was intensively discussed.



# 8. Publications and Presentations in 2001

The names of authors who work at the Eurotransplant central office or Eurotransplant Reference Laboratory are *in Italic*.

## 8.1 Publications

*Cohen B*

### **Balancing supply and demand in organ transplantation**

Ph.D. thesis, University of Maastricht, April 20, 2001

*Dankers MKA, Roelen DL, Lange de P, Persijn GG, Welsh KI, Doxiadis IIN, Claas FHJ*

### **Differential immunogenicity of HLA mismatches: the HLA - A2/A28 story**

In: European Journal of Immunogenetics, 28, 195-366 (2001)

*Deng MC, Smits JMA, Meester De J, Hummel M, Schoendube F, Scheld HH*

### **Heart transplantation indicated only in the most severely ill patient: perspectives from the German heart transplant experience.**

In: Current opinion in Cardiology 2001, 16, 97 - 104

*Doxiadis IIN, Datema G, Koelman C, Stobbe I, Meer-Prins van der PM, Bree van FP, Raffoux C, Claas FHJ*

### **In vitro studies on the biological role of HLA-A\*2402102L: relevance for the selection of unrelated bone marrow donors**

In: Human Immunol. 61 Sup.2: 90 (2000)

*Doxiadis INN, Witvliet M, Verduyn W, Lange de P, Tanke J, Schreuder GMTh, Persijn GG, Claas FHJ*

### **The relevance of proficiency testing for laboratories involved in cadaveric organ transplantation and its consequences for graft survival**

In: Clinical Transplants 2000, 99-103

*Doxiadis IIN, Meester De JMJ, Persijn GG, Claas FHJ*

### **Efficiency of special programs for highly sensitized patients within Eurotransplant**

In: Transplantation Proceedings, 33, 835-836 (2001)

*Doxiadis IIN, Lange de P, Vries de E, Persijn GG, Claas FHJ*

### **Protective and susceptible HLA polymorphisms in IgA nephropathy patients with end stage renal failure**

In: Tissue Antigens. 2001 Apr; 57(4): 344-347

*Doxiadis INN, Fijter de JW, Mallat MJK, Ringers J, Rosendaal FR, Paul L, Claas FHJ*

### **HLA-DR Matching may counteract immunogenicity of old donor kidneys**

Human Immunol. 62 Sup. 1: 95 (2001)

*Fijter de JW, Mallat MJK, Doxiadis IIN, Ringers J, Rosendaal FR, Claas FHJ, Paul LC*

### **Increased immunogenicity and cause of graft loss of old donor kidneys**

In: Journal of the American Society of Nephrology 2001: 12: 1538-1546

*Hauser IA, Persijn GG*

### **Organgewinnung, Gerechtigkeit der Organverteilung**

In: Mitt. Klinische Nephrologie XXX/2001: 49-54

*Kummer T, Mulder A, Veelen van P, Claas FHJ, Koning F, Doxiadis INN*

### **The peptide content of the soluble counterpart of HLA-A24 may differ from that of the membrane bound form of the same individual**

In: European Journal of Immunogenetics 28:319 (2001)

Lenglet JE, Lijkwan MA, Meester De J, Boer de J, Persijn GG, Frei U, Smits JMA

**Long term survival of old donor kidneys is predicted by serum creatinine at the time of brain death**

In: *Organs and Tissues*, 2, 79-85 (2001)

Meester De J, Smits JMA, Offner G, Persijn GG

**Renal re-transplantation of children: Is a policy >first cadaver donor, then live donor= an acceptable option?**

In: *Pediatric Transplantation* 2001; 5(3): 179-186

Meester De J, Smits JMA, Persijn GG, Haverich A

**Listing for lung transplantation: life expectancy and transplant effect, stratified by type of end-stage lung disease, the Eurotransplant experience**

In: *The Journal of Heart and Lung Transplantation* 2001 May; 20(5): 518-524

Meester De J, Smits JMA, Rutgerink E, Persijn GG, Haverich A

**Iso-risk curves as a tool for clinical decision-making: donor factors and medical urgency in cardiac transplantation**

In: *The Journal of Heart and Lung Transplantation* 2001 Oct; 20(10): 1099-1105

Mulder A, Kardol MJ, Kamp J, Uit het Broek C, Schreuder GMTh, Doxiadis IIN, Claas FHJ

**Determination of the frequency of HLA antibody secreting B-lymphocytes in alloantigen sensitized individuals**

In: *Clinical & Experimental Immunology* 2001 April; 124 (1): 9-15

Mulder A, Kardol MJ, Doxiadis IIN, Claas FHJ

**Reactivity of human monoclonal HLA antibodies with FLOW PRA beads**

In: *Human Immunol.* 61 Sup. 2: 132 (2000)

Mulder A, Kardol M, Lange de P, Doxiadis INN, Smith D, Bouchard G, Sachs D, Arn S, O=Malley P, Claas FHJ

**Reactivity of human monoclonal HLA antibodies with pig MHC class I antigens**

In: *European Journal of Immunogenetics*; 28:207 (2001)

Mulder A, Kardol M, Lange de P, Doxiadis INN, Smith D, Bouchard G, Sachs D, Arn S, O=Malley P, Claas FHJ

**Reactivity of human monoclonal HLA antibodies with pig MHC class I antigens**

*Human Immunol.* 62 Sup. 1: 167 (2001)

Mulder A, Kardol MJ, Kamp J, Uit het Broek C, Schreuder GMTh, Doxiadis IIN, Claas FHJ

**Determination of the frequency of HLA antibody secreting B-lymphocytes in alloantigen sensitized individuals**

In: *Clinical & Experimental Immunology* 2001 April; 124 (1): 9-15

Persijn GG, Smits JMA, Frei U

**Three-year experience with the new Eurotransplant Kidney Allocation System**

*Nephrology Dialysis Transplantation* 2001;16 Suppl 6:144-6

Persijn GG, Smits JMA, Meester De JMJ, Frei U

**Three years experience with the new Eurotransplant kidney allocation system 1996-1999**

In: *Transplantation Proceedings*, 33, 821-823 (2001)

Roelen DL, Stobbe I, Young NT, Bree van SPMJ, Doxiadis INN, Oudshoorn M, Morris PJ, Wood KJ, Claas FHJ

**Permissible and immunogenic HLA-A mismatches: Cytotoxic T cell precursor frequencies reflect graft survival data**

In: *European Journal of Immunogenetics* 28:246 (2001)

Roelen DL, Stobbe I, Young NT, Bree van SPMJ, Doxiadis INN, Oudshoorn M, Morris PJ, Wood KJ, Claas FHJ

**Permissible and immunogenic HLA-A mismatches: cytotoxic T-cell precursor frequencies reflect graft survival data**

*Hum Immunol.* 2001 Jul;62(7):661-7.

Roels L, Wight C, Miranda B, *Cohen B*

**Increasing donation rates in Europe by 50%: Holy Grail or a realistic goal? Donor Action Progress Report**

In: ET Newsletter 168, Feb. 2001, pp. 11-13

Schnuelle P, Berger S, Boer de J, *Persijn GG*, Woude van der FJ

**Donor employment of vasopressors and its impact on allograft survival after transplantation**

In: Transplantation Proceedings, 33, 1282-1283 (2001)

Schnuelle P, Berger S, *Boer de J*, *Persijn GG*, Woude van der FJ

**Effects of catecholamine application to brain-dead donors on graft survival in solid organ transplantation**

In: Transplantation: 72: 3: 455-463 (2001)

*Smits JMA*,

**Modeling strategies and their clinical relevance in the analysis of organ transplant data**

Ph.D. thesis, University of Leiden, December 12, 2001

*Stobbe I*, *Meer-Prins van der PMW*, *Lange de P*, *Oudshoorn M*, *Doxiadis IIN*, *Claas FHJ*

**In vitro CTL precursor frequencies do not reflect a beneficial effect of cross-reactive group (CREG) matching**

In: Human Immunol 61, 879-883 (2000)

Stroosma OB, Schurink GWH, *Smits JMA*, Kootstra G

**Transplanting horseshoe kidney: a worldwide survey**

In: The Journal of Urology 2001 Dec; 166(6): 2039-2042

Stroosma OB, *Smits JMA*, Schurink GWH, *Boer de J*, *Persijn GG*, Kootstra G

**Horseshoe kidney transplantation within the Eurotransplant region: a case control study**

In: Transplantation 2001 Dec 27;72(12):1930-3

Tanke J, *Witvliet M*, *Claas FHJ*, *Doxiadis INN*

**The percentage of panel reactive antibodies is an unreliable parameter for the allocation of cadaveric kidneys**

In: Human Immunol. 62 Sup. 1: 33 (2001)

Tanke J, *Witvliet M*, *Claas FHJ*, *Doxiadis INN*

**PRA value is an unreliable marker for the allocation of cadaveric kidneys**

In: European Journal of Immunogenetics 28:245 (2001)

Wezel van HBM, Keizer KM, *Cohen B*

**Een geen-bezwaar systeem voor de niet-geregistreerden in het Donorregister!**

In: Nederlands Juristenblad 2001: 30: 1426-1428

## 8.2 Posters

**10<sup>th</sup> Congress of the European Society for Organ Transplantation 2001 (ESOT),**

**October 6-11, 2001,**

**Lisboa, Portugal**

Liver allocation in Eurotransplant. An evaluation of the impact of urgency class as allocation factor

*Gerling T*, *Smits JMA*, *Persijn GG*, Slooff MHJ

Risk stratification for successful heart donation

*Fischer-Frölich CL*, *Eichmann E*, *Schenk M*, *Schröder A*, *Weber M*, *Boer de J*, *Viebahn R*, *Lauchart W*

## 8.3 Oral Presentations

### *Presentations by B. Cohen:*

**Deutsche Transplantations Gesellschaft meeting, June 5, 2001**

**Mainz, Germany**

New development in ENIS/ETIS

**The 3<sup>rd</sup> Congress of the International Transplant Coordinators Society,  
July 22-27, 2001,**

**Nagoya, Japan**

- Efficient use of expanded donor organs: the Eurotransplant ESP Program
- Comparing donation and transplant performances internationally: apples & oranges?
- *Cohen B (Moderator)*

**Eurotransplant Meeting, September 27-28, 2001,**

**Leiden, The Netherlands**

Eurotransplant Directors Report

**3<sup>rd</sup> Slovenian Congress of Anaesthesiologists - international, October 12-14, 2001,**

**Bled, Slovenia**

Tackling the organ shortage problem - Eurotransplant

**Transplant immunosuppression 2001, October 23-25, 2001,**

**Minneapolis, United States of America**

How to allocate elderly donor kidneys? Results from the old-for-old renal allocation system

**15. Jahrestagung Austrotransplant, November 7-10, 2001,**

**Stanglwirt, Going am Wilden Kaiser, Austria**

Evaluation of the first year of the Eurotransplant Senior Program

**10. Jahrestagung der Deutschen Transplantations Gesellschaft,  
November 22-24, 2001,**

**Heidelberg, Germany**

Auswirkungen des Deutschen Transplantationsgesetz

### *Presentations by T. Gerling:*

**Chirurgische Arbeitsgemeinschaft Transplantation (CAT) Meeting,**

**March 16, 2001, Essen, Germany**

Split liver allocation in Eurotransplant

**Eurotransplant Meeting 2001, September 27-28, 2001,**

**Leiden, The Netherlands**

Session: Liver meeting: One year of the new ELAS: an overview

**1<sup>st</sup> Scientific Symposium on Transplantation, December 21, 2001,**

**Ankara, Turkey**

Eurotransplant 2001 - current results and developments in organ allocation

### *Presentations by G. Persijn:*

**Eurotransplant Winter Meeting, January 17-20, 2001,**

**Fügen, Austria**

Progress report on the ET Senior Program. Update ESP 1999-2001

**Bundesärztekammer - Presseseminar, January 30, 2001,**

**Berlin, Germany**

Die Arbeit von Eurotransplant

**1<sup>st</sup> British Symposium on Organ preservation in collaboration with the Royal Society of Medicine and the International College of Surgeons,  
February 23, 2001,  
London, England**

The Eurotransplant Kidney Allocation System anno 2001

**5<sup>th</sup> Post-Graduate Course on Transplantation: Living Donation, March 2-6, 2001,  
Rome, Italy**

Ethical considerations on expanding the donor pool

**Walter-Brendell Kolleg für Transplantationsmedizin, March 11-17, 2001,  
Wildbad-Kreuth, Germany**

Organverteilung nach den Regeln von Eurotransplant

**Leids Universitair Medisch Centrum, March 21, 2001,  
Leiden, The Netherlands**

Eurotransplant: donatie, allocatie, transplantatie

**15<sup>th</sup> European Histocompatibility Conference, March 24-31, 2001,  
Granada, Spain**

Organ donation in Europe

**Hesperis / ECOT Course 2000 - 2001, June 6, 2001,  
Groningen, The Netherlands**

Organ donation and allocation in Europe

**Gemeinnützige Interessengemeinschaft OrganSpende e.V. (GIOS) - Presse Gespräch, June 7, 2001,  
Kassel, Germany**

ET: Stand der Dinge Anno 2001

**Sandimmun Optoral Most Treffen, June 7-8, 2001,  
Berlin, Germany**

“Eurotransplant: Zahlen - Zahlen - Zahlen” Stand der Dinge.

**Croatia Committee for Organ Transplantation, June 14-16, 2001,  
Zagreb, Croatia**

Eurotransplant: Organizational and Financial Aspects

**Joint ITCS/ISOS/JSOPMB Trilogy 2001 Symposium: A Donor shortage and network systems: successful initiatives from national/international organizations@, July 24, 2001,  
Nagoya, Japan**

“How to tackle the organ shortage problem in Eurotransplant”

**6<sup>th</sup> congress of the International Society for Organ Sharing (ISOS),  
July 25-27, 2001,  
Nagoya, Japan**

Chairman: Session: Non heart beating donors 4

**2001 A Transplant Odyssey, August 20-23, 2001,  
Istanbul, Turkey**

Chairman: Session: Infection/Malignancy

**ET Meeting, September 27-28, 2001,  
Leiden, The Netherlands**

– Medical Director=s Report

– ESP Update 2001

**10<sup>th</sup> Congress of the European Society for Organ Transplantation (ESOT),  
October 6-11, 2001,  
Lisbon, Portugal**

- On the list for a renal allograft. A critical evaluation of the Eurotransplant Kidney Allocation System (ETKAS)
- The Eurotransplant Senior Program - Old for Old
- The second report of the Historian of ESOT
- Chairman: Tissue donation

**Symposium abdominal organ transplantation at the MHH for more than three decades,  
October 12-14, 2001,  
Hannover, Germany**  
30 years Eurotransplant

**25 years in renal transplantation,  
6-10 November, 2001,  
Ankara, Turkey**

- The Eurotransplant Senior Program: results from the old-for-old renal allocation system
- A critical evaluation of the Eurotransplant Kidney Allocation System (ETKAS)
- Chairman: Session XIV (Free Papers)

**10. Jahrestagung der Deutschen Transplantations Gesellschaft,  
November 22-24, 2001,  
Heidelberg, Germany**  
Fortschrittsbericht des ET-Seniorprogramms  
+ press conference

**Council of Europe - Workshop, December 3-5, 2001,  
Moscow, Russia**  
Eurotransplant: State of the art concerning organ donation, allocation and transplantation

*Presentations by J. Smits:*

**ISHLT Heart Failure & Transplant Medicine Scientific council meeting,  
April 28, 2001,  
Vancouver, Canada**  
ET experience with risk data collection

**International Society of Clinical Biostatisticians (ISCB), August 19-23, 2001, Stockholm, Sweden**  
Evaluation of the renal transplant waiting list. An example of a survival analysis on complex data

**Eurotransplant Meeting 2001, September 27-28, 2001,  
Leiden, The Netherlands**  
Age matching in renal transplantation

**10<sup>th</sup> Congress of the European Society for Organ Transplantation 2001 (ESOT)  
October 6-11, 2001,  
Lisboa, Portugal**

- How to allocate elderly donor kidneys? Results from the old-for-old renal allocation system
- Do elderly renal transplant recipients experience a survival benefit?

**American Heart Association (AHA) 2001,  
November 11-14, 2001,  
Anaheim, United States of America**  
A model to improve prediction of mortality in heart transplant candidates

*Presentations by Th. Werle:*

**Eurotransplant Meeting 2001, September 27-28, 2001,  
Leiden, The Netherlands**  
Session: Heart/lung meeting: German HU Audit first experiences



## Addenda

**Table 1** Number of patients on the active waiting list on December 31, 2001, stratified by organ, per country and center

country	center	kidney	heart	liver	lung	pancreas
Austria	GA	103	11	12	2	1
	IB	238	4	40	6	29
	OE	63	0	0	0	0
	OL	40	0	0	0	0
	OW	0	0	0	0	0
	WD	3	0	0	0	0
	WG	268	26	49	23	1
	total	715	41	101	31	31
Belgium	AN	29	6	7	0	3
	AS	0	3	0	0	0
	BJ	17	0	0	0	0
	BP	0	0	0	0	11
	BR	183	8	11	12	2
	GE	128	3	21	0	8
	LA	134	3	28	4	6
	LE	7	0	0	0	0
	LG	54	12	10	0	3
	LM	242	3	25	26	7
	total	794	38	102	42	40
Germany	AK	74	4	4	0	0
	AU	48	0	0	0	0
	BA	0	46	0	7	0
	BB	292	0	0	0	9
	BC	602	0	101	0	16
	BD	0	40	0	20	0
	BE	340	0	0	0	0
	BH	0	0	0	0	0
	BM	185	0	0	0	0
	BO	128	0	17	0	2
	DR	126	6	0	12	0
	DU	331	4	0	0	0
	ES	292	15	77	30	4
	FD	47	3	0	0	0
	FM	247	4	13	7	0
	FR	307	13	2	0	1
	GI	149	14	0	3	14
	GO	95	1	28	0	0
	HA	153	1	0	0	0
	HB	271	9	28	6	0
	HG	284	4	83	0	1
	HM	358	0	0	0	0
	HO	730	33	99	135	13
	HS	123	0	3	27	0
	JE	215	14	82	7	13
	KG	0	0	0	0	0
	KI	101	23	21	33	0
	KK	7	0	0	0	0
	KL	143	7	8	0	0
	KM	324	0	2	0	0
	KS	167	1	0	0	0
	LP	126	14	35	5	0
	LU	309	0	0	0	1
	MA	133	0	0	0	0
	MB	0	0	16	0	0
	MD	0	6	0	0	0
MH	225	0	8	0	4	
ML	416	39	27	42	23	
MN	388	22	9	8	2	
MR	122	0	0	0	3	
MZ	161	4	56	11	7	
NB	322	14	25	0	3	
RB	179	6	10	0	1	
RO	179	0	14	0	21	
ST	282	0	0	0	0	
TU	129	0	24	0	2	
UL	238	0	0	0	4	
WZ	199	0	8	0	2	
total	9547	347	800	353	146	
Luxembourg	LX	12	0	0	0	0
	total	12	0	0	0	0
Slovenia	LO	101	8	4	0	0
	total	101	8	4	0	0
Netherlands	AW	240	0	0	0	0
	GR	315	2	47	34	1
	LB	161	0	14	0	8
	LD	0	0	0	0	0
	MS	124	0	0	0	0
	NY	150	0	0	0	0
	RD	182	22	25	1	0
	RS	6	0	0	0	0
	UT	96	9	0	12	0
	UW	7	0	0	0	0
total	1281	33	86	47	9	
<b>Eurotransplant</b>	<b>total</b>	<b>12450</b>	<b>467</b>	<b>1093</b>	<b>473</b>	<b>226</b>



**Table 2a Cadaveric donor activities in 2001, stratified by type of donation, per country and center of donor origin**

donor country	donor center	donors reported	not transplanted	transplanted	KI only	MOD	% MOD	non kidney donor
Austria	GA	15	1	14	2	10	83,3%	2
	IB	56	7	49	9	40	81,6%	0
	OE	6	0	6	3	3	50,0%	0
	OL	26	2	24	7	17	70,8%	0
	OW	1	0	1	1	0	0,0%	0
	WG	100	5	95	27	63	70,0%	5
	total	204	15	189	49	133	73,1%	7
Belgium	AN	24	2	22	1	20	95,2%	1
	AS	11	1	10	0	9	100,0%	1
	BJ	11	0	11	2	9	81,8%	0
	BR	37	7	30	6	24	80,0%	0
	GE	32	4	28	0	24	100,0%	4
	LA	34	4	30	6	22	78,6%	2
	LG	22	1	21	1	19	95,0%	1
	LM	74	4	70	6	57	90,5%	7
	total	245	23	222	22	184	89,3%	16
Germany	BW	130	5	125	41	80	66,1%	4
	BY	169	6	163	50	110	68,8%	3
	MI	161	5	156	59	94	61,4%	3
	ND	196	3	193	66	120	64,9%	7
	NO	139	8	131	36	88	71,0%	7
	NW	170	9	161	42	115	73,2%	4
	OS	129	7	122	46	74	61,7%	2
		total	1094	43	1051	340	681	66,7%
Luxembourg	LX	5	0	5	0	5	100,0%	0
	total	5	0	5	0	5	100,0%	0
Slovenia	LO	28	5	23	4	19	82,6%	0
	total	28	5	23	4	19	82,6%	0
Netherlands	AW	30	5	25	10	15	60,0%	0
	GR	31	1	30	8	21	72,4%	1
	LB	21	1	20	9	11	55,0%	0
	MS	32	10	22	13	9	40,9%	0
	NY	38	1	37	13	24	64,9%	0
	RD	21	1	20	5	15	75,0%	0
	UT	35	2	33	14	19	57,6%	0
	total	208	21	187	72	114	61,3%	1
Scandinavia	SK	76	73	3	0	1	100,0%	2
	total	76	73	3	0	1	100,0%	2
France	FT	25	22	3	1	0	0,0%	2
	total	25	22	3	1	0	0,0%	2
Italy	NI	10	5	5	1	0	0,0%	4
	total	10	5	5	1	0	0,0%	4
Switzerland	SW	25	18	7	4	0	0,0%	3
	total	25	18	7	4	0	0,0%	3
United Kingdom	UK	30	24	6	0	0	0,0%	6
	total	30	24	6	0	0	0,0%	6
other countries	TH	82	51	31	11	0	0,0%	20
	total	82	51	31	11	0	0,0%	20
<b>total</b>		<b>2032</b>	<b>300</b>	<b>1732</b>	<b>504</b>	<b>1137</b>	<b>69,3%</b>	<b>91</b>

**Table 2b** Cadaveric donor activities in 2001, stratified by organ used in a transplant, per country and per center of donor origin

donor country	donor center	kidney	heart	lung	liver	pancreas
Austria	GA	12	10	1	12	4
	IB	49	20	9	39	16
	OE	6	1	0	3	1
	OL	24	8	6	14	3
	OW	1	0	0	0	0
	WG	90	31	24	58	3
	total		182	70	40	126
Belgium	AN	21	8	5	21	10
	AS	9	6	3	9	1
	BJ	11	0	0	9	4
	BR	30	9	6	23	8
	GE	24	13	7	27	10
	LA	28	10	5	22	2
	LG	20	11	0	19	5
	LM	63	34	21	62	16
total		206	91	47	192	56
Germany	BW	121	52	8	73	28
	BY	160	59	23	96	30
	MI	153	43	10	88	20
	ND	186	74	33	109	31
	NO	124	56	23	71	18
	NW	157	43	19	110	43
	OS	120	47	8	61	20
total		1021	374	124	608	190
Luxembourg	LX	5	4	0	4	4
	total		5	4	0	4
Slovenia	LO	23	12	6	18	3
	total		23	12	6	18
Netherlands	AW	25	9	5	14	8
	GR	29	9	4	17	7
	LB	20	5	3	10	2
	MS	22	0	2	9	2
	NY	37	10	1	24	6
	RD	20	3	4	15	3
	UT	33	6	5	17	5
total		186	42	24	106	33
Scandinavia	SK	1	2	0	1	0
	total		1	2	0	1
France	FT	1	2	0	0	0
	total		1	2	0	0
Italy	NI	1	0	0	4	0
	total		1	0	0	4
Switzerland	SW	4	1	1	1	0
	total		4	1	1	1
United Kingdom	UK	0	2	1	3	0
	total		0	2	1	3
other countries	TH	11	1	6	14	0
	total		11	1	6	14
<b>total</b>		<b>1641</b>	<b>601</b>	<b>249</b>	<b>1077</b>	<b>313</b>

**Table 3a Transplant activities [cadaveric donors] in 2001, stratified by transplant country, center, organ**

country	center	kidney	heart	liver	lung	pancreas
Austria	GA	22	10	9	0	1
	IB	112	16	52	9	24
	OE	33	0	0	0	0
	OL	19	0	0	0	0
	WG	176	38	65	50	3
	total	362	64	126	59	28
Belgium	AN	34	5	4	0	2
	AS	0	11	0	0	0
	BJ	19	0	0	0	0
	BP	0	0	0	0	13
	BR	68	14	21	11	3
	GE	71	7	40	0	12
	LA	68	9	47	4	2
	LE	4	0	1	0	0
	LG	20	12	33	0	2
	LM	95	26	59	32	4
	total	379	84	205	47	38
Germany	AK	16	1	2	0	0
	AU	13	0	0	0	0
	BA	0	76	0	3	0
	BB	81	0	0	0	32
	BC	136	0	87	0	23
	BD	2	67	0	18	0
	BE	63	0	0	0	0
	BH	0	1	0	0	0
	BM	24	0	0	0	0
	BO	28	0	18	0	6
	DR	22	11	0	0	0
	DU	70	1	0	0	0
	ES	73	6	77	9	4
	FD	2	2	0	0	0
	FM	72	11	13	10	0
	FR	80	13	1	0	12
	GI	30	10	0	0	9
	GO	22	6	12	0	0
	HA	38	1	0	0	0
	HB	66	19	29	0	3
	HG	44	3	84	0	2
	HM	67	0	0	0	0
	HO	140	32	95	55	16
	HS	15	3	0	10	0
	JE	38	13	12	3	5
	KI	13	16	29	8	0
	KL	31	10	8	0	3
	KM	53	0	1	0	2
	KR	0	2	0	0	0
	KS	29	0	0	0	0
	LP	34	19	27	1	11
	LU	78	0	0	0	3
	MA	19	0	0	0	3
	MB	0	0	5	0	0
MD	0	11	0	0	0	
MH	44	0	6	0	1	
ML	106	36	29	13	27	
MN	75	20	17	2	7	
MR	32	0	0	0	6	
MZ	30	2	44	7	9	
NB	68	9	11	0	6	
RB	34	6	13	0	2	
RO	30	0	9	0	12	
ST	49	0	0	0	0	
TU	35	0	28	0	11	
UL	37	0	0	0	4	
WZ	25	0	5	0	2	
	total	1964	407	662	139	221
Luxembourg	LX	9	0	0	0	0
	total	9	0	0	0	0
Netherlands	AW	58	0	0	0	0
	GR	65	2	51	20	6
	LB	58	0	23	0	18
	MS	39	0	0	0	0
	NY	44	0	0	0	0
	RD	49	15	36	0	0
	RS	4	0	0	0	0
	UT	35	20	0	7	0
	UW	7	0	0	0	0
	total	359	37	110	27	24
Slovenia	LO	47	4	9	0	0
	total	47	4	9	0	0
<b>Eurotransplant</b>	<b>total</b>	<b>3120</b>	<b>596</b>	<b>1112</b>	<b>272</b>	<b>311</b>

**Table 3b Transplant activities [living donors] in 2001, stratified by transplant country, center, organ**

country	center	kidney related	non related	kidney total	liver related	non related	liver total	heart non related	heart total
Austria	GA	1	0	1	0	0	0	0	0
	IB	16	5	21	2	0	2	0	0
	OE	3	1	4	0	0	0	0	0
	OL	1	0	1	0	0	0	0	0
	WG	18	6	24	0	0	0	1	1
	total	39	12	51	2	0	2	1	1
Belgium	AN	2	1	3	0	0	0	0	0
	BR	1	1	2	0	0	0	0	0
	GE	0	0	0	14	1	15	0	0
	LA	3	0	3	11	1	12	0	0
	LG	3	0	3	0	0	0	0	0
	LM	1	1	2	0	0	0	0	0
	total	10	3	13	25	2	27	0	0
Germany	AK	4	3	7	0	0	0	0	0
	BB	10	2	12	0	0	0	0	0
	BC	19	13	32	15	6	21	0	0
	BE	1	1	2	0	0	0	0	0
	BM	4	3	7	0	0	0	0	0
	BO	0	1	1	0	0	0	0	0
	DR	1	1	2	0	0	0	0	0
	DU	11	7	18	0	0	0	0	0
	ES	21	4	25	21	2	23	0	0
	FD	3	3	6	0	0	0	0	0
	FM	4	2	6	0	0	0	0	0
	FR	8	8	16	0	0	0	0	0
	GI	6	2	8	0	0	0	0	0
	GO	7	1	8	4	6	10	0	0
	HA	4	3	7	0	0	0	0	0
	HB	17	1	18	0	1	1	0	0
	HG	6	6	12	17	3	20	0	0
	HM	5	5	10	0	0	0	0	0
	HO	21	8	29	7	4	11	0	0
	HS	3	0	3	0	0	0	0	0
	JE	7	0	7	1	1	20	0	0
	KL	5	0	5	0	0	0	0	0
	KM	3	4	7	0	0	0	0	0
	KS	2	0	2	0	0	0	0	0
	LP	6	3	9	0	0	0	0	0
	LU	4	4	8	0	0	0	0	0
	MA	4	1	5	0	0	0	0	0
	MH	9	7	16	0	0	0	0	0
	ML	7	13	20	1	2	3	1	1
	MN	12	7	19	0	0	0	0	0
	MZ	3	3	6	2	2	4	0	0
	NB	6	1	7	0	0	0	0	0
	RB	6	5	11	0	0	0	0	0
RO	2	1	3	0	0	0	0	0	
ST	12	5	17	0	0	0	0	0	
TU	3	0	3	0	0	0	0	0	
UL	4	4	8	0	0	0	0	0	
WZ	5	1	6	0	0	0	0	0	
total	255	133	388	68	27	95	1	1	
Netherlands	AW	15	3	18	0	0	0	0	0
	GR	13	7	20	0	0	0	0	0
	LB	15	10	25	0	0	0	0	0
	MS	8	7	15	0	0	0	0	0
	MY	23	12	35	0	0	0	0	0
	RD	20	18	38	0	0	0	0	0
	RS	1	0	1	0	0	0	0	0
	UT	8	4	12	0	0	0	0	0
	UW	2	0	2	0	0	0	0	0
total	105	61	166	0	0	0	0	0	
<b>Eurotransplant total</b>		<b>409</b>	<b>209</b>	<b>618</b>	<b>95</b>	<b>29</b>	<b>124</b>	<b>2</b>	<b>2</b>

**Table 4 Organ exchange of the Eurotransplant countries, based upon the transplant activities in 2001**

**Table 4a Survey of donor kidney exchange in 2001**

country	region	center	donors reported	donors not used	single organs	kidney en bloc	used organs	destination				origin			total organs transplanted	exchange balance	
								outside country	same country	same region	local center	same region	same country	outside country			
Austria	GA	GA	14	2	1	0	23	10	5	0	8	0	4	10	22	-1	
		IB	56	7	0	0	98	20	4	0	74	0	12	26	112	14	
	Upper Austria	OE	6	0	1	0	11	3	1	1	6	19	1	7	33	22	
		OL	26	2	0	0	50	19	5	18	8	2	0	9	19	-31	
		OW	1	0	0	0	2	0	0	2	0	0	0	0	0	-2	
	Vienna	Upper Austria	33	2	1	0	63	22	6	21	14	21	1	16	52	-11	
		WD	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
		WG	95	5	4	0	178	28	6	0	144	0	4	28	176	-2	
		Vienna	95	5	4	0	178	28	6	0	144	0	4	28	176	-2	
	total			198	16	6	0	362	80	21	21	240	21	21	80	362	0
Belgium/Luxembourg	BR	BR	37	7	3	3	54	25	3	0	26	0	13	29	68	14	
		AN	23	2	0	0	42	16	6	12	8	16	6	4	34	-8	
	Bel_1	BJ	11	0	0	0	22	4	3	11	4	11	2	2	19	-3	
		LG	22	2	0	1	39	14	7	13	5	5	2	8	20	-19	
		LX	5	0	0	0	10	7	0	2	1	6	0	2	9	-1	
	Bel_2	Bel_1	61	4	0	1	113	41	16	38	18	38	10	16	82	-31	
		AS	10	1	0	1	17	3	2	12	0	0	0	0	0	-17	
		GE	28	4	2	0	46	17	4	10	15	32	7	17	71	25	
		LE	0	0	0	0	0	0	0	0	0	0	0	1	1	1	
	Bel_2	LM	71	8	2	1	121	39	11	29	42	19	6	31	98	-23	
		Bel_2	109	13	4	2	184	59	17	51	57	51	13	49	170	-14	
	LA	LA	32	4	2	0	52	18	10	0	24	0	10	34	68	16	
	total			239	28	9	6	403	143	46	89	125	89	46	128	388	-15
Germany	Baden W.	BW	128	7	10	3	225	27	61	137	0	0	0	0	0	-225	
		FR	0	0	0	0	0	0	0	0	0	39	31	10	80	80	
		HB	0	0	0	0	0	0	0	0	0	34	21	11	66	66	
		MA	0	0	0	0	0	0	0	0	0	8	9	2	19	19	
		ST	0	0	0	0	0	0	0	0	0	16	25	8	49	49	
	Bayern	TU	0	0	0	0	0	0	0	0	0	19	12	4	35	35	
		LU	0	0	0	0	0	0	0	0	0	21	11	5	37	37	
		AU	0	0	0	0	0	0	0	0	0	9	3	1	13	13	
		BY	169	9	13	4	301	31	93	177	0	0	0	0	0	-301	
		MH	0	0	0	0	0	0	0	0	0	26	13	5	44	44	
	Mitte	ML	0	0	0	0	0	0	0	0	0	69	19	18	106	106	
		NB	0	0	0	0	0	0	0	0	0	39	24	5	68	68	
		RB	0	0	0	0	0	0	0	0	0	19	13	2	34	34	
		WZ	0	0	0	0	0	0	0	0	0	15	8	2	25	25	
		FD	0	0	0	0	0	0	0	0	0	1	0	1	2	2	
	Nord	FM	0	0	0	0	0	0	0	0	0	54	12	6	72	72	
		GI	0	0	0	0	0	0	0	0	0	18	9	3	30	30	
		HS	0	0	0	0	0	0	0	0	0	12	1	2	15	15	
		KS	0	0	0	0	0	0	0	0	0	21	6	2	29	29	
		MI	159	6	10	6	290	34	103	153	0	0	0	0	0	-290	
		MR	0	0	0	0	0	0	0	0	0	27	4	1	32	32	
		MZ	0	0	0	0	0	0	0	0	0	20	8	2	30	30	
		BM	0	0	0	0	0	0	0	0	0	14	8	2	24	24	
		GO	0	0	0	0	0	0	0	0	0	17	4	1	22	22	
		HG	0	0	0	0	0	0	0	0	0	25	11	8	44	44	
	Nord-Ost	HM	0	0	0	0	0	0	0	0	0	33	23	11	67	67	
		HO	0	0	0	0	0	0	0	0	0	92	40	8	140	140	
		KI	0	0	0	0	0	0	0	0	0	9	2	2	13	13	
		LU	1	0	0	0	2	0	0	0	2	49	22	5	78	76	
		ND	192	7	13	3	354	37	78	239	0	0	0	0	0	-354	
	NRW	BC	0	0	0	0	0	0	0	0	0	73	43	22	138	138	
		BD	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
		BE	0	0	0	0	0	0	0	0	0	36	19	8	63	63	
		NO	136	12	11	1	236	27	82	127	0	0	0	0	0	-236	
		RO	0	0	0	0	0	0	0	0	0	18	5	7	30	30	
	Ost	AK	0	0	0	0	0	0	0	0	0	9	4	3	16	16	
		BB	0	0	0	0	0	0	0	0	0	44	21	16	81	81	
		BO	0	0	0	0	0	0	0	0	0	13	12	3	28	28	
		DU	0	0	0	0	0	0	0	0	0	44	21	5	70	70	
		ES	0	0	0	0	0	0	0	0	0	44	23	6	73	73	
		KK	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
		KL	0	0	0	0	0	0	0	0	0	14	9	8	31	31	
		KM	0	0	0	0	0	0	0	0	0	26	25	2	53	53	
		MN	0	0	0	0	0	0	0	0	0	35	28	12	75	75	
		NW	167	10	7	3	304	22	53	229	0	0	0	0	0	-304	
	total			1080	59	77	21	1940	212	582	1144	2	1144	582	236	1964	24
	Netherlands	Netherlands	AW	30	5	3	0	47	16	0	22	9	31	0	17	57	10
			GR	31	2	4	0	54	14	0	22	18	29	0	18	65	11
			LB	21	1	2	0	38	6	0	25	7	38	0	12	57	19
			MS	32	10	4	0	40	4	0	23	13	21	0	5	39	-1
NY			38	1	2	0	72	15	0	43	14	22	0	8	44	-28	
RD			21	1	0	1	39	10	0	25	4	32	0	13	49	10	
RS			0	0	0	0	0	0	0	0	0	0	0	4	4	4	
UT			35	2	4	0	64	16	0	38	10	21	0	5	36	-28	
UW			0	0	0	0	0	0	0	0	0	4	0	4	8	8	
total			208	22	19	1	354	81	0	198	75	198	0	86	359	5	
Slovenia	SLO	LO	28	5	5	0	41	18	0	0	23	0	0	24	47	6	
		total			28	5	5	0	41	18	0	0	23	0	0	24	47
<b>Eurotransplant total</b>			<b>1753</b>	<b>130</b>	<b>116</b>	<b>28</b>	<b>3100</b>	<b>534</b>	<b>649</b>	<b>1452</b>	<b>465</b>	<b>1452</b>	<b>649</b>	<b>554</b>	<b>3120</b>	<b>20</b>	
outside ET			46	28	10	2	24	24	0	0	0	0	0	4	4	-20	
<b>total</b>			<b>1799</b>	<b>158</b>	<b>126</b>	<b>30</b>	<b>3124</b>	<b>558</b>	<b>649</b>	<b>1452</b>	<b>465</b>	<b>1452</b>	<b>649</b>	<b>558</b>	<b>3124</b>	<b>0</b>	

**Table 4 Organ exchange of the Eurotransplant countries, based upon the transplant activities in 2001**

**Table 4b Survey of donor heart exchange in 2001**

country	region	center	donors reported	donors not used	used organs	destination				origin			total organs transplanted	exchange balance
						outside country	same country	same region	local center	same region	same country	outside country		
Austria	Vienna	GA	11	1	10	4	0	0	6	0	4	0	10	0
		IB	25	5	20	3	4	0	13	0	2	1	16	-4
		OE	2	1	1	0	0	1	0	0	0	0	0	-1
		OL	12	5	7	1	1	5	0	0	0	0	0	-7
		WG	45	15	30	2	4	0	24	6	3	3	36	6
		Vienna	59	21	38	3	5	6	24	6	3	3	36	-2
total			95	27	68	10	9	6	43	6	9	4	62	-6
Belgium/Luxembourg	BR	BR	11	4	7	1	1	0	5	0	5	2	12	5
		AN	16	8	8	0	6	0	2	1	1	1	5	-3
	Bel_1	BJ	1	1	0	0	0	0	0	0	0	0	0	0
		LG	15	4	11	2	3	1	5	2	4	1	12	1
		LX	4	0	4	2	0	2	0	0	0	0	0	-4
	Bel_2	Bel_1	36	13	23	4	9	3	7	3	5	2	17	-6
		AS	10	4	6	1	1	2	2	8	1	0	11	5
		GE	19	6	13	5	2	5	1	5	1	0	7	-6
		LM	45	12	33	6	5	11	11	5	5	3	24	-9
	LA	Bel_2	74	22	52	12	8	18	14	18	7	3	42	-10
LA		17	8	9	2	4	0	3	0	5	1	9	0	
total			138	47	91	19	22	21	29	21	22	8	80	-11
Germany	Baden W.	BW	78	27	51	0	40	11	0	0	0	0	0	-51
		FR	0	0	0	0	0	0	0	4	8	1	13	13
		HB	0	0	0	0	0	0	0	5	13	1	19	19
	Bayern	KR	0	0	0	0	0	0	0	2	0	0	2	2
		BY	85	28	57	1	41	15	0	0	0	0	0	-57
		MD	0	0	0	0	0	0	0	0	11	0	11	11
		ML	0	0	0	0	0	0	0	8	24	3	35	35
		NB	0	0	0	0	0	0	0	5	4	0	9	9
	Mitte	RB	0	0	0	0	0	0	0	2	3	1	6	6
		BH	0	0	0	0	0	0	0	0	1	0	1	1
		FD	0	0	0	0	0	0	0	1	1	0	2	2
		FM	0	0	0	0	0	0	0	3	7	0	10	10
		GI	0	0	0	0	0	0	0	2	3	5	10	10
		HS	0	0	0	0	0	0	0	1	1	1	3	3
		KS	0	0	0	0	0	0	0	0	0	0	0	0
	Nord	MI	84	42	42	0	35	7	0	0	0	0	0	-42
		MZ	0	0	0	0	0	0	0	0	2	0	2	2
		GO	0	0	0	0	0	0	0	1	5	0	6	6
		HG	0	0	0	0	0	0	0	1	2	0	3	3
		HO	0	0	0	0	0	0	0	7	15	5	27	27
		KI	0	0	0	0	0	0	0	1	12	2	15	15
	Nord-Ost	ND	106	36	70	4	56	10	0	0	0	0	0	-70
		BD	0	0	0	0	0	0	0	18	40	8	66	66
		KG	0	0	0	0	0	0	0	0	0	0	0	0
	RW	NO	81	28	53	0	35	18	0	0	0	0	0	-53
		AK	0	0	0	0	0	0	0	0	1	0	1	1
		BA	0	0	0	0	0	0	0	8	64	3	75	75
		DU	0	0	0	0	0	0	0	1	0	0	1	1
		ES	0	0	0	0	0	0	0	1	2	2	5	5
	Ost	KL	0	0	0	0	0	0	0	3	7	0	10	10
MN		0	0	0	0	0	0	0	4	10	5	19	19	
NW		91	49	42	2	23	17	0	0	0	0	0	-42	
DR		0	0	0	0	0	0	0	2	8	1	11	11	
HA		0	0	0	0	0	0	0	0	1	0	1	1	
JE		0	0	0	0	0	0	0	4	7	2	13	13	
LP		0	0	0	0	0	0	0	6	12	0	18	18	
OS		74	27	47	1	34	12	0	0	0	0	0	-47	
total			599	237	362	8	264	90	0	90	264	40	394	32
Netherlands	Netherlands	AW	12	4	8	3	0	5	0	0	0	0	0	-8
		GR	20	11	9	2	0	6	1	0	0	0	1	-8
		LB	10	6	4	1	0	3	0	0	0	0	0	-4
		MS	5	5	0	0	0	0	0	0	0	0	0	0
		NY	19	9	10	2	0	8	0	0	0	0	0	-10
		RD	10	7	3	1	0	2	0	10	0	5	15	12
		UT	12	6	6	1	0	1	4	15	0	0	19	13
total			88	48	40	10	0	25	5	25	0	5	35	-5
Slovenia	LO	LO	14	3	11	8	0	0	3	0	0	1	4	-7
		total	14	3	11	8	0	0	3	0	0	1	4	-7
<b>Eurotransplant total</b>			<b>934</b>	<b>362</b>	<b>572</b>	<b>55</b>	<b>295</b>	<b>142</b>	<b>80</b>	<b>142</b>	<b>295</b>	<b>58</b>	<b>575</b>	<b>3</b>
Outside ET			59	51	8	8	0	0	0	0	0	5	5	-3
<b>total</b>			<b>993</b>	<b>413</b>	<b>580</b>	<b>63</b>	<b>295</b>	<b>142</b>	<b>80</b>	<b>142</b>	<b>295</b>	<b>63</b>	<b>580</b>	<b>0</b>

**Table 4 Organ exchange of the Eurotransplant countries, based upon the transplant activities in 2001**

**Table 4c Survey of donor heart+lung exchange in 2001**

country	region	center	donors reported	donors not used	used organs	destination					origin		total organs	exchange balance	
						outside country	same country	same region	local center	same region	same country	outside country			
Austria	GA	GA	1	1	0	0	0	0	0	0	0	0	0	0	
	IB	IB	4	4	0	0	0	0	0	0	0	0	0	0	
	WG	OL		2	1	1	0	0	1	0	0	0	0	0	-1
		WG		14	13	1	0	0	0	1	1	0	0	2	1
		WG		16	14	2	0	0	1	1	1	0	0	2	0
total			21	19	2	0	0	1	1	1	0	0	2	0	
Belgium/ Luxembourg	BR	BR	9	7	2	1	0	0	1	0	1	0	2	0	
	Bel_1	AN	3	3	0	0	0	0	0	0	0	0	0	0	0
		BJ	4	4	0	0	0	0	0	0	0	0	0	0	0
		Bel_1	7	7	0	0	0	0	0	0	0	0	0	0	0
	Bel_2	AS	1	1	0	0	0	0	0	0	0	0	0	0	0
		LM	4	3	1	0	0	0	1	0	0	1	2	1	
		Bel_2	5	4	1	0	0	0	1	0	0	1	2	1	
	LA	LA	2	1	1	0	1	0	0	0	0	0	0	0	-1
	total			23	19	4	1	1	0	2	0	1	1	4	0
Germany	Baden W. Bayern	BW	5	4	1	1	0	0	0	0	0	0	0	0	-1
		BY	7	5	2	0	2	0	0	0	0	0	0	0	-2
		ML	0	0	0	0	0	0	0	0	1	0	1	1	
	Mitte	FM	0	0	0	0	0	0	0	1	0	0	1	1	
		MI	10	9	1	0	0	1	0	0	0	0	0	0	-1
	Nord	HG	0	0	0	0	0	0	0	0	0	0	0	0	0
		HO	0	0	0	0	0	0	0	0	2	2	1	5	5
		KI	0	0	0	0	0	0	0	0	1	0	1	1	1
		ND	12	8	4	0	2	2	0	0	0	0	0	0	-4
	Nord-Ost	BD	0	0	0	0	0	0	0	0	1	0	1	1	1
		NO	10	7	3	0	3	0	0	0	0	0	0	0	-3
	RW	BA	0	0	0	0	0	0	0	0	1	0	1	1	1
		ES	0	0	0	0	0	0	0	0	0	1	1	1	1
		MN	0	0	0	0	0	0	0	0	1	0	1	1	1
		NW	5	4	1	0	1	0	0	0	0	0	0	0	-1
	Ost	DR	0	0	0	0	0	0	0	0	0	0	0	0	0
		JE	0	0	0	0	0	0	0	0	0	0	0	0	0
		LP	0	0	0	0	0	0	0	0	1	0	1	1	1
		OS	2	2	0	0	0	0	0	0	0	0	0	0	0
total				51	39	12	1	8	3	0	3	8	2	13	1
Netherlands	Netherlands	AW	3	2	1	0	0	1	0	0	0	0	0	0	-1
		GR	3	3	0	0	0	0	0	2	0	0	2	2	
		LB	1	0	1	0	0	1	0	0	0	0	0	0	-1
		MS	2	2	0	0	0	0	0	0	0	0	0	0	0
		NY	2	2	0	0	0	0	0	0	0	0	0	0	0
		RD	1	1	0	0	0	0	0	0	0	0	0	0	0
		UT	1	1	0	0	0	0	0	0	0	0	0	0	0
total			13	11	2	0	0	2	0	2	0	0	2	0	
Slovenia	LO	LO	9	8	1	1	0	0	0	0	0	0	0	-1	
	total			9	8	1	1	0	0	0	0	0	0	-1	
<b>Eurotransplant total</b>			<b>117</b>	<b>96</b>	<b>21</b>	<b>3</b>	<b>9</b>	<b>6</b>	<b>3</b>	<b>6</b>	<b>9</b>	<b>3</b>	<b>21</b>	<b>0</b>	
Outside ET			19	19	0	0	0	0	0	0	0	0	0	0	
<b>total</b>			<b>136</b>	<b>115</b>	<b>21</b>	<b>3</b>	<b>9</b>	<b>6</b>	<b>3</b>	<b>6</b>	<b>9</b>	<b>3</b>	<b>21</b>	<b>0</b>	

**Table 4 Organ exchange of the Eurotransplant countries, based upon the transplant activities in 2001**

**Table 4d Survey of donor double lung exchange in 2001**

country exchange	region	center	donors			destination				origin			total	balance
			reported	not used	organs	outside country	same country	same region	local center	same region	same country	outside country		
Austria	GA	GA	1	0	1	0	1	0	0	0	0	0	0	-1
	IB	IB	8	2	6	1	4	0	1	0	0	1	2	-4
	WG	OL	6	4	2	1	0	1	0	0	0	0	0	-2
		WG	6	4	2	1	0	1	0	0	0	0	0	-2
	LO WG	WG	29	15	14	1	0	0	13	4	5	5	27	13
total			44	21	23	3	5	1	14	4	5	6	29	6
Belgium/ Luxembourg	BR	BR	2	0	2	0	0	0	2	0	5	0	7	5
	Bel_1	AN	9	4	5	1	4	0	0	0	0	0	0	-5
		LG	1	1	0	0	0	0	0	0	0	0	0	0
		Bel_1	10	5	5	1	4	0	0	0	0	0	0	-5
	GE	GE	5	1	4	0	4	0	0	0	0	0	0	-4
	LA	LA	6	2	3	2	1	0	0	0	1	1	2	-1
	LM	AS	3	1	2	0	1	1	0	0	0	0	0	-2
		LM	14	2	12	0	0	0	12	1	4	3	20	8
	LM	17	3	14	0	1	1	12	1	4	3	20	6	
total			40	11	28	3	10	1	14	1	10	4	29	1
Germany	Baden W.	BW	14	8	6	0	6	0	0	0	0	0	0	-6
		HB	0	0	0	0	0	0	0	0	0	0	0	0
	Bayern	BY	22	6	16	2	13	1	0	0	0	0	0	-16
		ML	0	0	0	0	0	0	0	1	4	0	5	5
		FM	0	0	0	0	0	0	0	0	1	2	0	3
	Mitte	GI	0	0	0	0	0	0	0	0	0	0	0	0
		HS	0	0	0	0	0	0	0	1	4	1	6	6
		MI	20	12	8	1	5	2	0	0	0	0	0	-8
		MZ	0	0	0	0	0	0	0	0	2	0	2	2
		HG	0	0	0	0	0	0	0	0	0	0	0	0
	Nord	HO	0	0	0	0	0	0	0	0	13	31	4	48
		KI	0	0	0	0	0	0	0	1	4	0	5	5
		ND	49	23	26	2	10	14	0	0	0	0	0	-26
	Nord-Ost	BD	0	0	0	0	0	0	0	4	8	2	14	14
		NO	30	14	16	0	12	4	0	0	0	0	0	-16
	RW	BA	0	0	0	0	0	0	0	0	2	0	2	2
		ES	0	0	0	0	0	0	0	3	5	0	8	8
		MN	0	0	0	0	0	0	0	0	1	0	1	1
	Ost	NW	34	19	15	1	11	3	0	0	0	0	0	-15
		DR	0	0	0	0	0	0	0	0	0	0	0	0
JE		0	0	0	0	0	0	0	0	2	0	2	2	
LP		0	0	0	0	0	0	0	0	0	0	0	0	
OS		15	7	8	0	8	0	0	0	0	0	0	0	-8
total			184	89	95	6	65	24	0	24	65	7	96	1
Netherlands	Netherlands	AW	6	3	3	0	0	3	0	0	0	0	0	-3
		GR	7	5	2	0	0	0	2	7	0	2	11	9
		LB	4	2	2	0	0	2	0	0	0	0	0	-2
		MS	2	0	2	0	0	2	0	0	0	0	0	-2
		NY	6	5	1	0	0	1	0	0	0	0	0	-1
		RD	4	0	4	1	0	3	0	0	0	0	0	-4
		UT	7	3	4	1	0	2	1	6	0	0	7	3
total			36	18	18	2	0	13	3	13	0	2	18	0
Slovenia	LO WG	LO	9	5	4	1	0	3	0	0	0	0	0	-4
	total			9	5	4	1	0	3	0	0	0	0	-4
<b>Eurotransplant total</b>			<b>313</b>	<b>144</b>	<b>168</b>	<b>15</b>	<b>80</b>	<b>42</b>	<b>31</b>	<b>42</b>	<b>80</b>	<b>19</b>	<b>172</b>	<b>4</b>
Outside ET			23	17	6	6	0	0	0	0	0	2	2	-4
<b>total</b>			<b>336</b>	<b>161</b>	<b>174</b>	<b>21</b>	<b>80</b>	<b>42</b>	<b>31</b>	<b>42</b>	<b>80</b>	<b>21</b>	<b>174</b>	<b>0</b>



**Table 4 Organ exchange of the Eurotransplant countries, based upon the transplant activities in 2001**

**Table 4e Survey of donor single lung exchange in 2001**

country	region	center	donors reported	donors not used	donors single lung	donors 2 single lung	single lungs used total	destination				origin				total organs transplanted	exchange balance
								outside country	same country	same region	local center	same region	same country	outside country	total		
Austria	GA	GA	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	IB	IB	5	2	1	2	5	0	1	0	4	0	1	2	7	2	
	WG	OL	4	1	0	3	6	0	0	6	0	0	0	0	0	0	-6
		WG	4	1	0	3	6	0	0	6	0	0	0	0	0	0	-6
	LO WG	WG	11	0	8	3	14	2	1	0	11	6	1	3	21	7	
total			20	3	9	8	25	2	2	6	15	6	2	5	28	3	
Belgium/ Luxembourg	BR	BR	2	0	2	0	2	1	1	0	0	0	2	0	2	0	
	GE	GE	3	0	1	2	5	1	1	3	0	0	0	0	0	-5	
	LA	LA	0	0	0	0	0	0	0	0	0	0	2	0	2	2	
	LM	AS	1	0	1	0	1	0	0	1	0	0	0	0	0	0	-1
		LM	10	2	3	5	13	5	2	0	6	4	0	0	10	-3	
total			16	2	7	7	21	7	4	4	6	4	4	0	14	-7	
Germany	Baden W.	BW	1	0	1	0	1	0	1	0	0	0	0	0	0	-1	
		HB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	Bayern	BY	5	0	0	5	10	1	8	1	0	0	0	0	0	-10	
		ML	0	0	0	0	0	0	0	0	0	1	4	2	7	7	
		FM	0	0	0	0	0	0	0	0	0	0	6	0	6	6	
	Mitte	GI	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
		HS	0	0	0	0	0	0	0	0	0	0	4	0	4	4	
		MI	2	1	1	0	1	0	0	1	0	0	0	0	0	0	-1
		MZ	0	0	0	0	0	0	0	0	0	1	4	0	5	5	
		HO	0	0	0	0	0	0	0	0	0	0	1	1	2	2	
	Nord	KI	0	0	0	0	0	0	0	0	0	0	1	1	2	2	
		ND	3	0	0	3	6	0	5	1	0	0	0	0	0	-6	
		BD	0	0	0	0	0	0	0	0	0	0	2	1	3	3	
	Nord-Ost	NO	5	1	2	2	6	1	5	0	0	0	0	0	0	-6	
		BA	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	RW	ES	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
		MN	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
		NW	3	0	2	1	4	0	4	0	0	0	0	0	0	-4	
	Ost	DR	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
		JE	0	0	0	0	0	0	0	0	0	0	1	0	1	1	
LP		0	0	0	0	0	0	0	0	0	0	0	0	0	0		
total			19	2	6	11	28	2	23	3	0	3	23	4	30	2	
Netherlands	Netherlands	AW	1	0	1	0	1	0	0	1	0	0	0	0	0	-1	
		GR	2	0	2	0	2	0	0	0	2	2	0	3	7	5	
		RD	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
		UT	2	1	1	0	1	0	0	1	0	0	0	0	0	-1	
total			5	1	4	0	4	0	0	2	2	2	0	3	7	3	
Slovenia	LO WG	LO	1	0	1	0	1	1	0	0	0	0	0	0	0	-1	
	total			1	0	1	0	1	1	0	0	0	0	0	0	-1	
<b>Eurotransplant total</b>			<b>61</b>	<b>8</b>	<b>27</b>	<b>26</b>	<b>79</b>	<b>12</b>	<b>29</b>	<b>15</b>	<b>23</b>	<b>15</b>	<b>29</b>	<b>12</b>	<b>79</b>	<b>0</b>	
Outside ET			2	2	0	0	0	0	0	0	0	0	0	0	0	0	
<b>total</b>			<b>63</b>	<b>10</b>	<b>27</b>	<b>26</b>	<b>79</b>	<b>12</b>	<b>29</b>	<b>15</b>	<b>23</b>	<b>15</b>	<b>29</b>	<b>12</b>	<b>79</b>	<b>0</b>	

**Table 4 Organ exchange of the Eurotransplant countries, based upon the transplant activities in 2001**

**Table 4f Survey of donor whole liver exchange in 2001**

country	region	center	donors reported	donors not used	used organs	destination			local center	same region	origin same country	outside country	total organs transplanted	exchange balance
						outside country	same country	same region						
Austria	GA	GA	15	3	12	5	2	0	5	0	0	4	9	-3
	IB	IB	49	10	39	10	1	0	28	0	9	15	52	13
	OE	OE	4	1	3	2	1	0	0	0	0	0	0	-3
	OL	OL	21	7	15	4	11	0	0	0	0	0	0	-15
	WG	WG	72	17	56	18	0	0	38	0	6	18	62	6
	total		161	38	125	39	15	0	71	0	15	37	123	-2
Belgium/ Luxembourg	BR	BR	35	12	23	4	10	0	9	0	7	5	21	-2
	Bel_1	AN	24	3	21	4	5	9	3	1	0	0	4	-17
		BJ	10	1	9	2	4	3	0	0	0	0	0	-9
		LG	20	2	18	2	6	1	9	14	5	5	33	15
		LX	5	1	4	2	0	2	0	0	0	0	0	-4
	Bel_2	Bel_1	59	7	52	10	15	15	12	15	5	5	37	-15
		AS	11	2	9	2	2	5	0	0	0	0	0	-9
		LM	72	10	61	10	13	0	38	5	6	11	60	-1
	GE	Bel_2	83	12	70	12	15	5	38	5	6	11	60	-10
		GE	30	5	25	11	2	0	12	0	10	15	37	12
LA	LA	31	9	21	7	5	0	9	0	19	19	47	26	
	total		238	45	191	44	47	20	80	20	47	55	202	11
Germany	Baden W.	BW	89	20	68	12	22	34	0	0	0	0	0	-68
		FR	0	0	0	0	0	0	0	0	1	0	1	1
		HB	0	0	0	0	0	0	0	0	18	9	2	29
		TU	0	0	0	0	0	0	0	0	16	7	5	28
	Bayern	BY	127	33	94	13	39	42	0	0	0	0	0	-94
		MH	0	0	0	0	0	0	0	2	2	2	6	6
		ML	0	0	0	0	0	0	0	16	9	4	29	29
		NB	0	0	0	0	0	0	0	9	1	1	11	11
		RB	0	0	0	0	0	0	0	11	2	0	13	13
		WZ	0	0	0	0	0	0	0	4	1	0	5	5
	Mitte	FM	0	0	0	0	0	0	0	11	2	0	13	13
		HS	0	0	0	0	0	0	0	0	0	0	0	0
		MI	117	30	87	14	32	41	0	0	0	0	0	-87
	Nord	MZ	0	0	0	0	0	0	0	30	7	7	44	44
		Mitte	117	30	87	14	32	41	0	41	9	7	57	-30
		GO	0	0	0	0	0	0	0	4	3	5	12	12
		HG	0	0	0	0	0	0	0	18	16	13	47	47
		HO	0	0	0	0	0	0	0	39	39	12	90	90
		KI	0	0	0	0	0	0	0	12	11	6	29	29
		ND	156	52	104	18	13	73	0	0	0	0	0	-104
	Nord-Ost	Nord	156	52	104	18	13	73	0	73	69	36	178	74
		BC	0	0	0	0	0	0	0	38	26	19	83	83
		NO	115	47	68	9	14	45	0	0	0	0	0	-68
	RW	RO	0	0	0	0	0	0	0	7	1	1	9	9
		Nord-Ost	115	47	68	9	14	45	0	45	27	20	92	24
		AK	0	0	0	0	0	0	0	2	0	0	2	2
		BO	0	0	0	0	0	0	0	12	2	2	16	16
		ES	0	0	0	0	0	0	0	32	16	15	63	63
		KL	0	0	0	0	0	0	0	6	2	0	8	8
		KM	0	0	0	0	0	0	0	0	1	0	1	1
	Ost	MN	0	0	0	0	0	0	0	7	5	4	16	16
		NW	137	35	102	15	28	59	0	0	0	0	0	-102
JE		0	0	0	0	0	0	0	6	3	1	10	10	
LP		0	0	0	0	0	0	0	19	4	3	26	26	
MB		0	0	0	0	0	0	0	3	2	0	5	5	
OS		94	35	59	7	24	28	0	0	0	0	0	-59	
	Ost	94	35	59	7	24	28	0	28	9	4	41	-18	
	total		835	252	582	88	172	322	0	322	172	102	596	14
Netherlands	AW	AW	19	5	14	4	10	0	0	0	0	0	0	-14
	GR	GR	22	6	16	6	4	0	6	0	25	18	49	33
	LB	LB	14	4	10	0	5	0	5	0	17	1	23	13
	MS	MS	10	1	9	1	8	0	0	0	0	0	0	-9
	NY	NY	27	3	24	10	14	0	0	0	0	0	0	-24
	RD	RD	14	0	14	3	7	0	4	0	19	12	35	21
	UT	UT	21	5	17	4	13	0	0	0	0	0	0	-17
	total		127	24	104	28	61	0	15	0	61	31	107	3
Slovenia	LO	LO	24	7	17	13	0	0	4	0	0	5	9	-8
	total		24	7	17	13	0	0	4	0	0	5	9	-8
<b>Eurotransplant total</b>			<b>1385</b>	<b>366</b>	<b>1019</b>	<b>212</b>	<b>295</b>	<b>342</b>	<b>170</b>	<b>342</b>	<b>295</b>	<b>230</b>	<b>1037</b>	<b>18</b>
Outside ET			53	34	20	20	0	0	0	0	0	2	2	-18
<b>total</b>			<b>1438</b>	<b>400</b>	<b>1039</b>	<b>232</b>	<b>295</b>	<b>342</b>	<b>170</b>	<b>342</b>	<b>295</b>	<b>232</b>	<b>1039</b>	<b>0</b>

**Table 4 Organ exchange of the Eurotransplant countries, based upon the transplant activities in 2001**

**Table 4g Survey of donor split liver exchange in 2001**

country	region	center	donors reported	used organs	destination					origin		total organs transplanted	exchange balance	
					outside country	same country	same region	local center	same region	same country	outside country			
Austria	WG	WG	3	6	3	0	0	3	0	0	0	3	-3	
	total		3	6	3	0	0	3	0	0	0	3	-3	
Belgium/ Luxembourg	Bel_1	LG	1	2	2	0	0	0	0	0	0	0	-2	
	GE	GE	2	4	2	0	0	2	0	0	1	3	-1	
	total		3	6	4	0	0	2	0	0	1	3	-3	
Germany	Baden W.	BW	4	8	0	8	0	0	0	0	0	0	-8	
	Bayern	BY	2	4	0	4	0	0	0	0	0	0	-4	
	Mitte	MI	1	2	0	2	0	0	0	0	0	0	-2	
	Nord	HG	HG	0	0	0	0	0	0	9	16	11	36	36
		HO	HO	0	0	0	0	0	0	1	1	3	5	5
		ND	ND	5	10	0	0	10	0	0	0	0	0	-10
	Nord-Ost	Nord	Nord	5	10	0	0	10	0	10	17	14	41	31
		BC	BC	0	0	0	0	0	0	2	1	0	3	3
	RW	NO	NO	3	6	0	4	2	0	0	0	0	0	-6
		BO	BO	0	0	0	0	0	0	2	0	0	2	2
		ES	ES	0	0	0	0	0	0	10	3	1	14	14
	Ost	MN	MN	0	0	0	0	0	0	0	1	0	1	1
		NW	NW	8	16	1	3	12	0	0	0	0	0	-16
		JE	JE	0	0	0	0	0	0	2	0	0	2	2
		LP	LP	0	0	0	0	0	0	0	1	0	1	1
		OS	OS	2	4	0	2	2	0	0	0	0	0	-4
		Ost	Ost	2	4	0	2	2	0	2	1	0	3	-1
total			25	50	1	23	26	0	26	23	15	64	14	
Netherlands	GR	GR	1	2	0	1	0	1	0	0	0	1	-1	
	RD	RD	1	2	2	0	0	0	0	1	0	1	-1	
	UT	UT	1	2	2	0	0	0	0	0	0	0	-2	
	total			3	6	4	1	0	1	0	1	0	2	-4
Slovenia	LO	LO	1	2	2	0	0	0	0	0	0	0	-2	
	total		1	2	2	0	0	0	0	0	0	0	-2	
<b>Eurotransplant total</b>			<b>35</b>	<b>70</b>	<b>14</b>	<b>24</b>	<b>26</b>	<b>6</b>	<b>26</b>	<b>24</b>	<b>16</b>	<b>72</b>	<b>2</b>	
Outside ET			1	2	2	0	0	0	0	0	0	0	-2	
<b>total</b>			<b>36</b>	<b>72</b>	<b>16</b>	<b>24</b>	<b>26</b>	<b>6</b>	<b>26</b>	<b>24</b>	<b>16</b>	<b>72</b>	<b>0</b>	

**Table 4 Organ exchange of the Eurotransplant countries, based upon the transplant activities in 2001**

**Table 4h Survey of donor pancreas+kidney exchange in 2001**

country	region	center	donors reported	donors not used	used organs	destination			local center	origin			total organs transplanted	exchange balance	
						outside country	same country	same region		same region	same country	outside country			
Austria	GA	GA	6	2	4	0	3	0	1	0	0	0	1	-3	
	IB	IB	12	1	11	0	0	0	11	0	6	1	18	7	
	OE	OE	1	0	1	0	1	0	0	0	0	0	0	-1	
	OL	OL	5	2	3	1	2	0	0	0	0	0	0	-3	
	WG	WG	2	0	2	0	0	0	2	0	0	0	2	0	
	total		26	5	21	1	6	0	14	0	6	1	21	0	
Belgium/ Luxembourg	AN	AN	7	0	7	4	1	1	1	0	1	0	2	-5	
	BR	BR	12	4	8	6	0	0	2	0	1	0	3	-5	
	GE	GE	9	2	7	1	1	0	5	1	3	1	10	3	
	LA	LA	3	1	2	1	1	0	0	0	2	0	2	0	
	LG	LG	5	0	5	4	1	0	0	1	1	0	2	-3	
	LM	AS	1	0	1	1	0	0	0	0	0	0	0	-1	
	LX	LM	20	5	14	5	4	1	4	0	0	0	4	-10	
	total		61	12	48	26	8	2	12	2	8	1	23	-25	
Germany	Baden W.	BW	29	3	25	0	3	22	0	0	0	0	0	-25	
		FR	0	0	0	0	0	0	0	6	4	2	12	12	
		HB	0	0	0	0	0	0	0	0	3	0	0	3	3
		MA	0	0	0	0	0	0	0	1	1	1	3	3	
		TU	0	0	0	0	0	0	0	0	8	1	0	9	9
	Bayern	UL	0	0	0	0	0	0	0	0	4	0	0	4	4
		BY	30	5	24	0	2	22	0	0	0	0	0	0	-24
		MH	0	0	0	0	0	0	0	0	1	0	0	1	1
		ML	0	0	0	0	0	0	0	0	14	5	7	26	26
		NB	0	0	0	0	0	0	0	0	4	2	0	6	6
	Mitte	RB	0	0	0	0	0	0	0	0	2	0	0	2	2
		WZ	0	0	0	0	0	0	0	0	1	1	0	2	2
		GI	0	0	0	0	0	0	0	0	2	2	1	5	5
		MI	22	5	16	0	5	11	0	0	0	0	0	0	-16
		MR	0	0	0	0	0	0	0	0	5	0	1	6	6
	Nord	MZ	0	0	0	0	0	0	0	0	5	4	0	9	9
		HG	0	0	0	0	0	0	0	0	2	0	0	2	2
		HO	0	0	0	0	0	0	0	0	13	1	1	15	15
		LU	0	0	0	0	0	0	0	0	2	0	1	3	3
		ND	37	8	29	0	12	17	0	0	0	0	0	0	-29
	Nord-Ost	BC	0	0	0	0	0	0	0	11	5	7	23	23	
		NO	25	9	16	0	2	14	0	0	0	0	0	-16	
		RO	0	0	0	0	0	0	0	0	3	5	2	10	10
	RW	BB	0	0	0	0	0	0	0	0	20	2	8	30	30
		BO	0	0	0	0	0	0	0	0	5	1	0	6	6
		ES	0	0	0	0	0	0	0	0	3	0	1	4	4
		KL	0	0	0	0	0	0	0	0	1	0	1	2	2
KM		0	0	0	0	0	0	0	0	0	1	1	2	2	
Ost	MN	0	0	0	0	0	0	0	0	6	0	1	7	7	
	NW	43	4	39	0	4	35	0	0	0	0	0	0	-39	
	JE	0	0	0	0	0	0	0	0	3	0	0	3	3	
	LP	0	0	0	0	0	0	0	0	7	1	1	9	9	
	OS	20	3	17	0	7	10	0	0	0	0	0	0	-17	
	total		206	37	166	0	35	131	0	132	36	36	204	38	
Netherlands	Netherland	AW	10	2	8	3	0	5	0	0	0	0	0	-8	
		GR	6	1	5	2	0	1	2	2	0	1	5	0	
		LB	2	0	2	0	0	0	2	12	0	4	18	16	
		MS	2	0	2	0	0	2	0	0	0	0	0	-2	
		NY	6	0	6	2	0	4	0	0	0	0	0	-6	
		RD	3	0	3	2	0	1	0	0	0	0	0	-3	
	total		35	4	31	13	0	14	4	14	0	5	23	-8	
Slovenia	LO	LO	7	4	3	3	0	0	0	0	0	0	0	-3	
		total	7	4	3	3	0	0	0	0	0	0	0	-3	
<b>Eurotransplant total</b>			<b>335</b>	<b>62</b>	<b>269</b>	<b>43</b>	<b>49</b>	<b>147</b>	<b>30</b>	<b>148</b>	<b>50</b>	<b>43</b>	<b>271</b>	<b>2</b>	
<b>total</b>			<b>335</b>	<b>62</b>	<b>269</b>	<b>43</b>	<b>49</b>	<b>147</b>	<b>30</b>	<b>148</b>	<b>50</b>	<b>43</b>	<b>271</b>	<b>2</b>	

**Table 5 Registrations on the waiting list, by organ, per country for 1997 - 2001****Table 5a Kidney: registrations on the waiting list**

	1997	1998	1999	2000	2001
Austria	443	480	449	482	467
Belgium	455	450	488	509	581
Germany	3490	3599	3625	3345	3266
Luxembourg	1	8	5	7	13
Netherlands	817	865	871	768	804
Slovenia	0	0	2	176	54
total	5206	5402	5440	5287	5185

**Table 5b Heart: registrations on the waiting list**

	1997	1998	1999	2000	2001
Austria	152	137	113	122	110
Belgium	150	130	107	117	118
Germany	974	976	818	661	629
Netherlands	75	51	70	61	56
Slovenia	0	0	9	10	8
total	1351	1294	1117	971	921

**Table 5c Lung: registrations on the waiting list**

	1997	1998	1999	2000	2001
Austria	53	78	84	70	74
Belgium	49	45	54	54	75
Germany	222	242	328	301	297
Netherlands	38	33	43	37	36
total	362	398	509	462	482

**Table 5d Liver: registrations on the waiting list**

	1997	1998	1999	2000	2001
Austria	188	174	196	217	208
Belgium	182	204	239	286	307
Germany	1027	1031	1086	1243	1331
Netherlands	103	116	133	164	169
Slovenia	0	0	3	11	16
total	1500	1525	1657	1921	2031

**Table 5e Pancreas: registrations on the waiting list**

	1997	1998	1999	2000	2001
Austria	33	32	33	46	33
Belgium	29	24	37	45	60
Germany	215	282	322	306	246
Netherlands	20	24	35	40	22
total	297	362	427	437	361

**Table 6 Living donors from the Eurotransplant area, used in a transplant, by organ, by country 1990 - 2001****Table 6a**

Kidney transplants	Austria	Belgium	Germany	Netherlands	Eurotransplant
1990	18	25	42	45	130
1991	6	21	59	45	131
1992	14	10	59	60	143
1993	7	6	59	55	127
1994	6	12	78	64	160
1995	19	19	83	98	219
1996	18	19	130	84	251
1997	24	17	278	91	410
1998	47	26	346	106	525
1999	17	26	379	135	557
2000	61	8	345	171	585
2001	47	19	387	158	611

**Table 6b**

Liver transplants	Austria	Belgium	Germany	Netherlands	Eurotransplant
1990	0	0	0	0	0
1991	0	0	5	0	5
1992	0	2	15	0	17
1993	0	2	12	0	14
1994	0	13	11	0	24
1995	0	16	9	0	25
1996	0	12	10	0	22
1997	2	17	24	0	43
1998	1	12	25	0	38
1999	5	16	40	0	61
2000	6	23	90	0	119
2001	2	28	94	0	124

# Balance sheet and exploitation result of Stichting Eurotransplant International Foundation

## Balance sheet

Assets	31.12.2001 x nlg. 1000	31.12.2001 x euro 1000	31.12.2000 x nlg. 1000	31.12.2000 x euro 1000
Fixed assets	2.026	919	1.628	739
Short term receivables	4.893	2.220	4.905	2.226
Liquid assets	4.052	1.839	4.662	2.116
	<u>10.971</u>	<u>4.978</u>	<u>11.195</u>	<u>5.081</u>
<b>Liabilities</b>	<b>31.12.2001 x nlg. 1000</b>	<b>31.12.2001 x euro 1000</b>	<b>31.12.2000 x nlg. 1000</b>	<b>31.12.2000 x euro 1000</b>
Equity	519	235	519	236
Reserve funds	2.565	1.164	2.694	1.222
Short term liabilities	7.887	3.579	7.982	3.622
	<u>10.971</u>	<u>4.978</u>	<u>11.195</u>	<u>5.080</u>
<b>Statement of income and charges</b>				
Income	2001 x nlg. 1000	2001 x euro 1000	2000 x nlg. 1000	2000 x euro 1000
Registration fees	7.167	3.252	6.858	3.112
Miscellaneous	255	116	355	161
	<u>7.421</u>	<u>3.368</u>	<u>7.213</u>	<u>3.273</u>
<b>Charges</b>	<b>2001 x nlg. 1000</b>	<b>2001 x euro 1000</b>	<b>2000 x nlg. 1000</b>	<b>2000 x euro 1000</b>
Salaries	4.489	2.037	4.342	1.970
General expenses	1.398	635	1.399	635
Medical expenses	228	103	261	119
Transport	148	67	103	47
Housing	356	162	324	147
Depreciation	657	298	566	257
Miscellaneous	205	93	185	84
	<u>7.481</u>	<u>3.395</u>	<u>7.180</u>	<u>3.259</u>
Exploitation - balance	-60	-27	33	14
	<u>7.421</u>	<u>3.368</u>	<u>7.213</u>	<u>3.273</u>

## Accounting policies

### Current assets and liabilities

These are stated at nominal value. For doubtful accounts a provision has been made.

### Exploitation balance

The exploitation balance is defined as the difference between income and charges based on the above mentioned policies.

## Auditor's opinion

We have audited the financial statements of Stichting Eurotransplant International Foundation for the year ended December 31, 2001 from which the summarized financial statements were derived, in accordance with relevant auditing standards. In our report dated May 7, 2002 we expressed an unqualified opinion on the financial statements from which the summarized financial statements were derived. These financial statements are the responsibility of the Foundation's management. Our responsibility is to express an opinion on these financial statements based on our audit.

In our opinion, the accompanying summarized financial statements are consistent, in all material aspects, with the financial statements from which they were derived.

For a better understanding of the Foundation's financial position and the results of its operations for the period and the scope of our audit, the summarized financial statements should be read in conjunction with the financial statements from which the summarized financial statements were derived and our audit report thereon.

Leiden, April 2002

Deloitte & Touche

